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TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY 4
WOMAN'S AUXILIARY DIRECTORY 4

ORIGINAL ARTICLES

NODULAR TUBERCULOSIS OF THE LUNG 21
John S. Chapman, M.D., Dallas, Texas
PARTIAL PULMONECTOMY 24
Dermont W. Melick, M.D., Phoenix, Arizona
SOME PROBLEMS OF INTESTINAL OBSTRUCTION 28
Conrad J. Baumgartner, M.D., Beverly Hills, California
LARYNGEAL VERTIGO 30
Lindsay E. Beaton, M.D., Tucson, Arizona

BASIC SCIENCE SEMINAR

PHARMACOLOGY OF THE ANTIHISTAMINIC DRUGS 34
Robert G. Delph, M.D., Tucson, Arizona

ARIZONA MEDICAL PROBLEMS

CONSULTATION AND CASE ANALYSIS 39
PHOENIX CLINICAL CLUB 42

THE SECRETARY'S MESSAGE

CHIROPRACTOR LITIGATION 50
VOLUNTARY SICKNESS AND HEALTH PROTECTION 50

EDITORIAL

LOST—ONE MILLION 51

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS. 52
Guillermo Osler, M.D.
PLAN NATIONAL MEDICAL CIVIL DEFENSE CONFERENCE 57
THE ANATOMY BOARD 57
STATEMENT OF THE AMERICAN MEDICAL ASSOCIATION ON S.1328, SURVEY OF SICKNESS 63
BOOK REVIEWS 65

WOMAN'S AUXILIARY

VETERANS' LEGISLATION 61
Mrs. Louis Hirsch, Tucson, Arizona
WHAT "TODAY'S HEALTH" MEANS TO YOU! 66
Mrs. Paul B. Jarrett, Phoenix, Arizona

DIRECTORY

SANATORIUM DIRECTORY 68
DRUGGISTS DIRECTORY 71
PHYSICIANS' DIRECTORY 74

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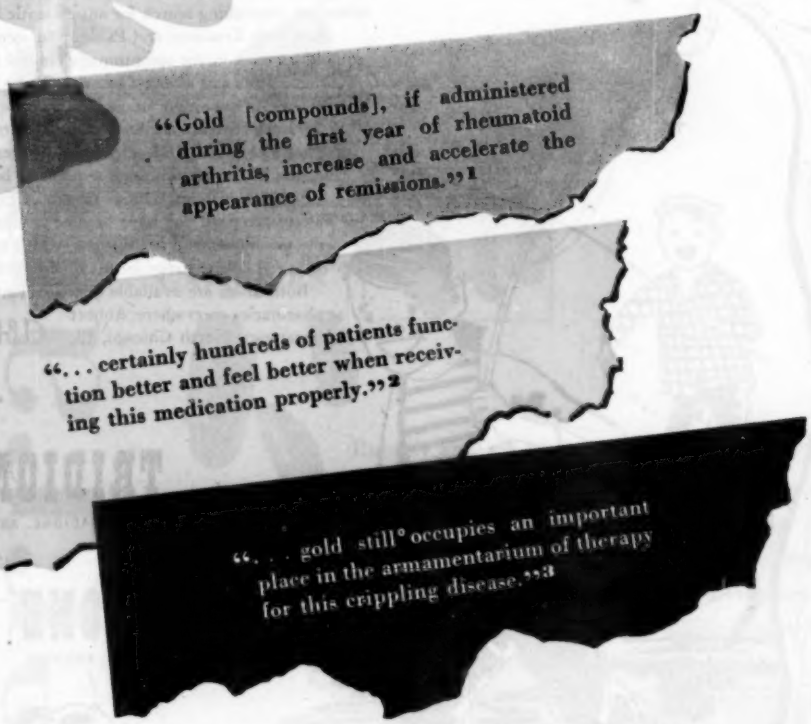
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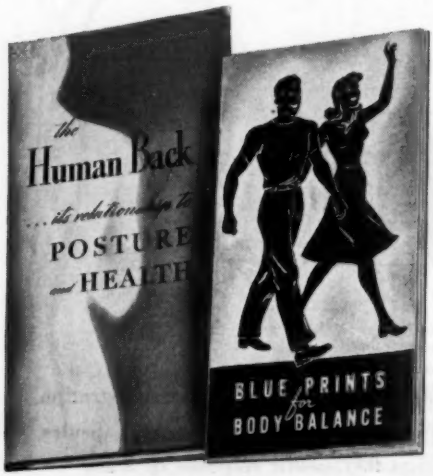

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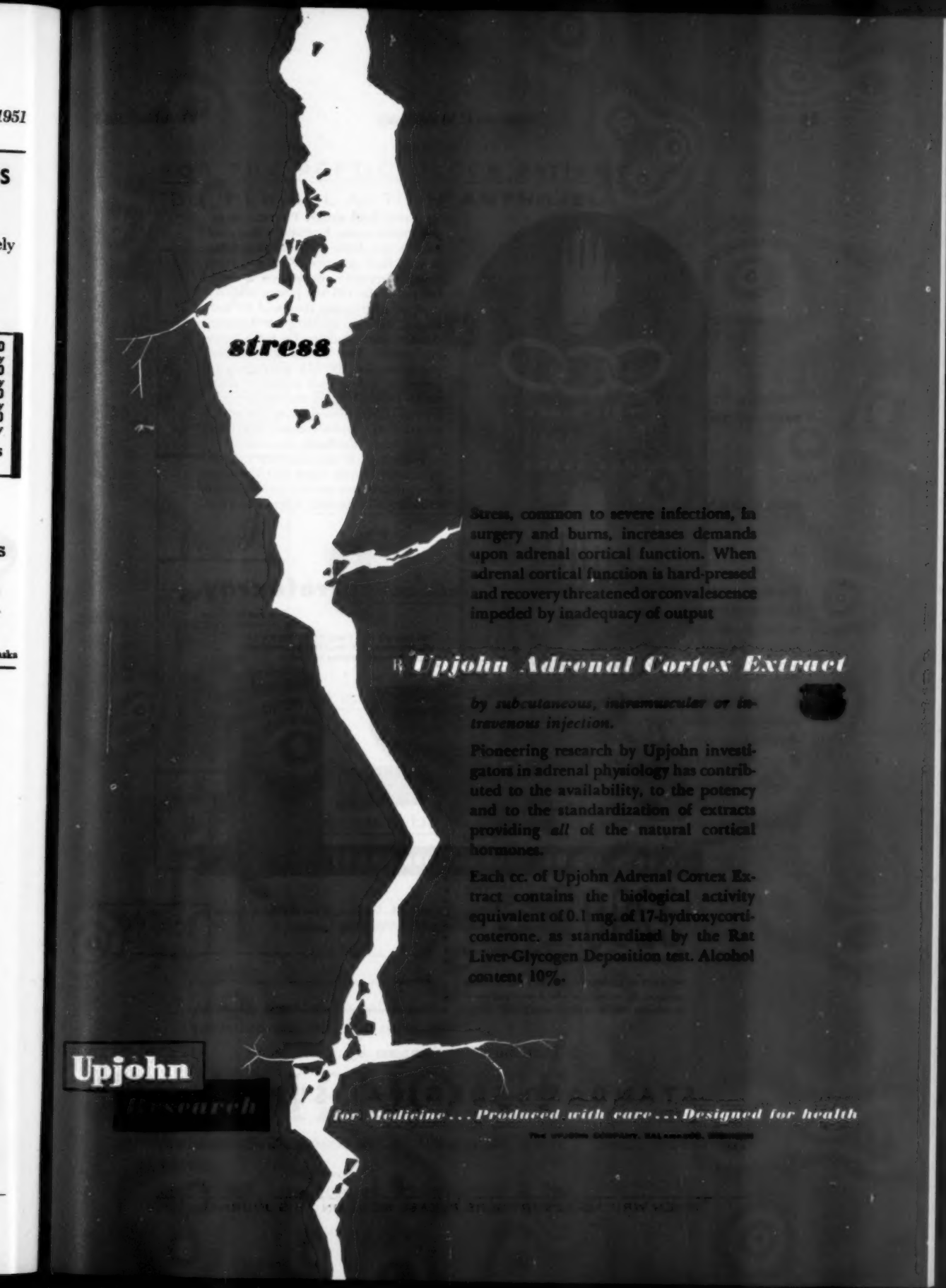

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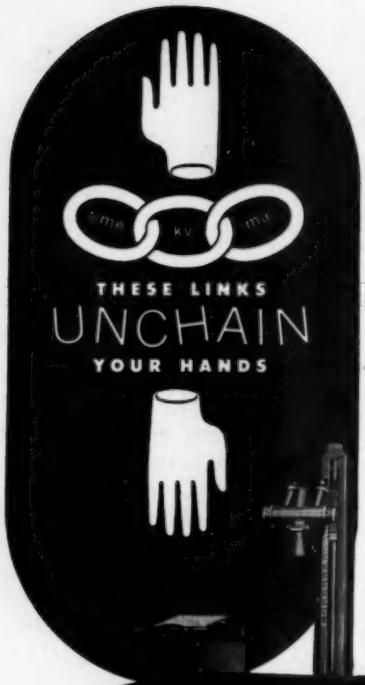

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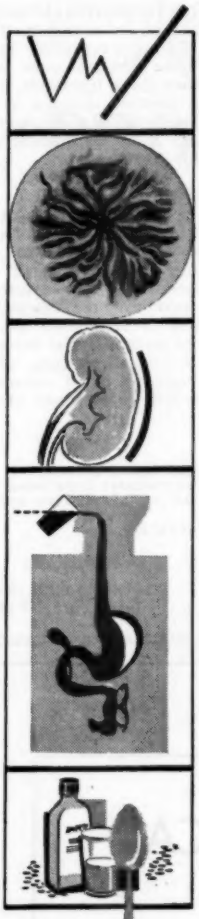

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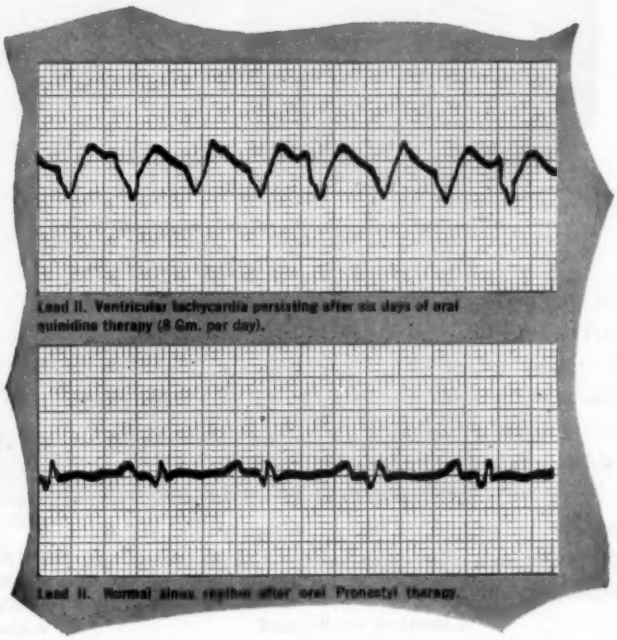

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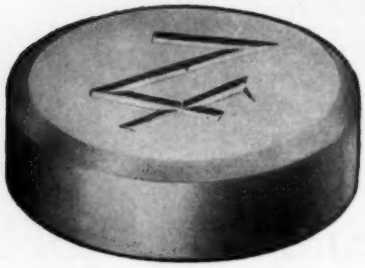

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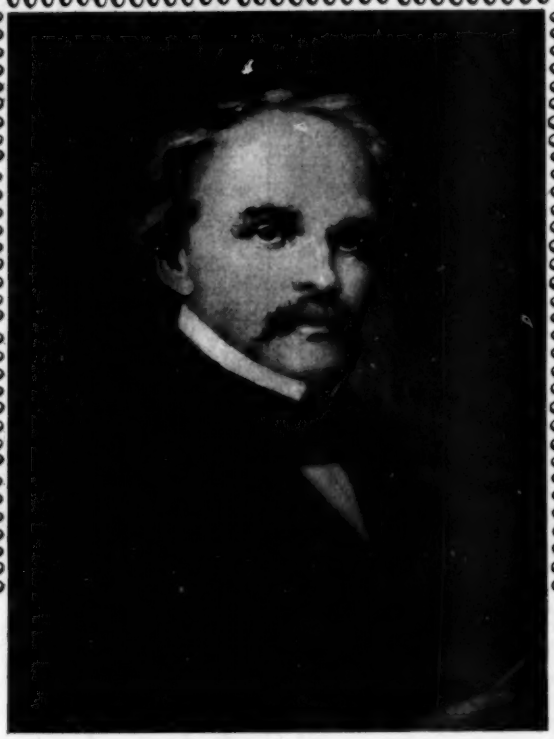

Psychoneurotics of Genius

Hawthorne, distinguished American novelist, is said to have been afflicted with a psychoneurosis from early childhood. His quiet life, wholly detached from the major activities of the times, was largely given over to brooding solitude.

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Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance. [1,2] Such states may involve any one of the organ systems or several at one time. [1,3] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	Parasympathetic
Gastro-intestinal System	Hypomotility Intestinal Atony Hyposecretion Reduced salivation	Hypermotility Gastrointestinal spasm Hypersecretion
Cardio-vascular System	Rapid heart rate Peripheral vaso-constriction	Slow heart rate Vasodilatation
Functional Manifestations	Palpitation Tachycardia Elevated blood pressure Dry mouth and throat	Heartburn Nausea-vomiting Low blood pressure Colonic spasm

The data here tabulated is from references [3,4,5,6,7], given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives. [8,9,10]

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ARIZONA MEDICINE

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ORIGINAL ARTICLES

NODULAR TUBERCULOSIS OF THE LUNG*

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Under this title it is my wish to discuss two specific aspects of pulmonary tuberculosis. Although these two conditions differ roentgenographically, from the morphologist's standpoint the most significant point of their divergence is in their size and number. The first aspect of nodular tuberculosis is manifest usually as small, rounded, fibro-caseous shadows which are well circumscribed and are usually located relatively high in one or both apices. The other nodular form more frequently is larger, perhaps of a diameter of two or three centimeters, most frequently single and located in almost any part of the lung where tuberculous cavitation occurs. Such a nodule is sometimes called a tuberculoma or sometimes a tuberculoma-like filled-in cavity. Its origin, however, is the result of obstruction of the draining bronchiole. After this, liquid material fills the hiatus to produce a solid shadow; still later the contents gradually become inspissated. While such a change has been referred to in the past as a variety of cavity closure (4), it seems that a more proper and accurate term, which would also be morphologically correct, would be cavity obturation. This term is also of convenience in distinguishing such a nodule from a true tuberculoma with its characteristic onion skin lamellae.

Though in their familiar roentgenographic aspect they may seem somewhat dissimilar, I hope to be able to show on morphologic and clinical grounds that the difference is quantitative rather than qualitative and to infer from this similarity what appears to be a proper treatment for the one will also be rational treatment for the other.

Pathologists (5,6,8) among whom perhaps the most recent is Medlar, have shown repeatedly that the apical and subapical nodules mentioned above are nothing but hiatuses of small size which are filled with a material that varies all the way from the consistency of a paste through that of dense cheese to perfectly solid, gritty material. Such nodules, though they are more familiar to us in the apical regions, may nevertheless be found in almost any location in the lungs when postmortem study is undertaken. The wall of these small structures is composed of dense, hyalinized connective tissue in the older nodules, while in the younger ones the fibrous tissue is relatively immature and still to some degree vascularized. In many instances the wall is quite thin, while in others it may be as much as two or three millimeters thick. Proximity to bronchioles varies.

In the cases with large nodules, the result of cavity obturation, the histologic picture is almost identical except as the size or the location may be of some degree of interest. Here the wall is composed of fibrous tissue of almost any age from the earliest fibroblastic proliferation to dense hyalinized scar. The thickness of the wall likewise varies rather considerably, but in these lesions it is more common for the walls to be slightly thicker than in the smaller nodules. The contents are essentially the same, except that in these larger nodules calcification is perhaps less frequent. Living organisms are present

*Read before Sixtieth Annual Meeting, Ariz. Med. Assoc., April 30, 1951.

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in the walls of both, except possibly in very old lesions.

There is perhaps a difference in the pathogenesis of the nodules. The smaller appear to arise either from hematogeneous or bronchogenic seeding. In the first instance there is not necessarily a close communication with a bronchus. It is probably also true that not all of these small nodules underwent a cavitary phase, but rather appeared first as small areas of exudation which subsequently underwent caseous necrosis, becoming encapsulated before bronchial drainage occurred. Others unquestionably may have a cavitary phase—a condition familiar clinically as the so-called "moth-eaten" rarefactions.

The development of the single larger nodule through cavity obturation has already been mentioned, but it may be added that it seems theoretically possible—and I believe I have seen the clinical demonstration—that a large area of exudation may undergo partial reabsorption and partial caseation without ever achieving the bronchial discharge which would reveal the lesion as a cavity. Such a change from an exudative to a nodular lesion without the intermediate stage of cavity was particularly common in the days of pneumothorax, when predominantly exudative lesions were placed under collapse before frank cavitation had occured but significantly and undoubtedly after caseation was well under way. The suggested view is that collapse produced a rapid reabsorption of the exudative component and that it also prevented or decreased bronchial drainage with necrotic material being retained and encapsulated.

It should be emphasized at this point that whether the nodule is relatively large and single or quite small and multiple, it represents an attempt at healing. The lesion or lesions are firm and inelastic, their walls are fibrous and their contents are excluded temporarily or permanently from the bronchial tree, the circulation and the contiguous tissue. Patients, if they have no other lesions than these, present satisfactory clinical evidence of arrest in the form of X-ray stability, negative bacteriologic studies, normal sedimentation rates and blood counts, and absence of constitutional symptoms. In the past it was necessary to be content with this result. Since this necessity arose from the fact that no method of collapse nor any amount of bed-rest seemed to alter the lesions significantly during considerable periods of observation and since it is now possible to apply other measures, the most imperious demand is made upon us to decide whether or not we should now be content with our treatment when we have reached such a stage. Day and associates (2) question the safety of such lesions.

Recently it has been stated in the literature (7) that obturated cavities have a very satisfactory prognosis. Since local experience seemed to cast some doubt upon this statement, it was decided to restudy a group of private patients who had in common a single characteristic, namely that they had apparently been ready for classification as quiescent or, in some cases even fully arrested but subsequently developed a reactivation of disease. This study was begun in 1943 and includes patients who received several diverse forms of therapy. The original intent of this special grouping was to serve as a check upon my judgment in the selection of the treatment. Eighteen patients who at one time were on the way to recovery but who later had reactivation are used in this analysis. The accompanying table indicates as objectively as possible the nature—for this discussion, not the cause—of the reactivation.

TABLE I

Nature of Reactivation in a Group of Patients who had achieved Quiescence or better.

Exudative nimbus	7
Evacuation of nodule	6
Seedling nodule	1
Hematogenous	2
Dissemination from Diseased Bronchus	2

Two patients were classified as having had hematogenous dissemination. One was a female in which a pneumothorax which had been carried to a successful completion without any local evidence of recurrence but who after some fifteen months of graduated bed-rest developed tuberculosis of the cervical glands and papulonecrotic tuberculids of the skin. The other was so classified because after having achieved a very satisfactory result upon one side he later showed a cluster of nodules high in the apex of the other lung. In one patient it was not possible to determine what type of spread took place. Two patients apparently developed a spread of their disease from lesions located within the bronchus of the major side. The remaining thirteen patients all formed nodular lesions. Of these six

apparently suffered reactivation as a result of the development of bronchial communication while six others seemed to be reactivated as the result of an exudative flare around previous nodules. It is of interest that this group comprises patients recently managed and that in many such reactivation seemed to result from the cessation of stretpomycin or pneumoperitoneum therapy. This group is marked by the fact that they were on the whole less stable, or were stable for a much shorter time, than the others. The thirteenth patient simply presented a new nodule below a pre-existing cluster, without there having been definite evidence of renewed activity about the older lesions. Pathologic studies failed to ditsinguish the more recent nodule from the others.

Both the old and the recent nodules showed a tendency to slough out leaving behind open cavities. In some of the cases the cavity had preceded the formation of the nodule, while in others no roentgenographic observation of a cavity was present. The appearance of the seedling nodule, so far as observed, has been limited to a single case in which there was already multiple nodulation, while the development of the exudative nimbus, at least so far as I have been able to observe, has likewise been confined to multiple nodulation.

Medlar's (5) recent contribution in which he presents very clearly the concept of revascularization of the nodular lesion seems to be an adequate explanation of the succession of events. In the one case, in spite of a practically hyaline wall, a softening took place between the nodule and a bronchiole, while in the other the incompletely organized wall seemed to leak organisms out in to the adjacent tissue with a corresponding inflammatory reaction. That this exudative nimbus is not often encountered around an obturated cavity may well be due to the fact that the limiting wall is fairly firmly organized, whereas the obturating plug of fibroblasts, being relatively newer, is more subject to revascularization.

It is my opinion that this study shows, that both multiple nodulation and obturated cavities are prone to reactivation. In this relatively small series they behave with considerable similarity. It is not to be concluded that all such cases or even a large per cent reactivate. The significant point is that of all reactivations in this small series revascularisation of nodules or obturated cavities accounts for 65-70 per cent of the cases.

In a larger group we have, recently, frequently been advising surgical removal of obturated cavities. In a few cases sub-segmental resection has been sufficient; in more it has seemed better to do a segmental or even a lobar resection. Up to the present in this group there have been no early (up to 2 years) unfavorable results. The thesis has been that at least among the patients we have seen the chance of reopening of a filled-in cavity has been great enough that we have been unwilling to accept such a lesion as a satisfactory end result of treatment. Since no form of collapse can have too much effect upon such lesions their ablation seems the logical step.

If this reasoning is true of obturated cavities, it should perhaps likewise be extended to the clustered nodular disease of the apex which presents the same obstacles to successful collapse therapy and which certainly in this series seems to possess a rather high reactivation potential. This is not now regarded as a regular indication for resection (1, 2, 3), and admittedly such an attitude is radical; certainly for the present resection should be limited to those patients in whom the nodular disease has caused at least one reactivation. There is one further reservation that derives from the patient in whom a seedling nodule appeared. If that nodule instead of being a local lymphatic spread or merely a spread by continuity of tissue should instead represent a new hematogenous deposit resection is indefensible.

Finally some explanation has been offered for the highly obstinate behavior of apical nodular disease which Dr. Amberson has very vividly described as browsing downward. Perhaps, also, this shifts away from both patient and physician a little of the onus for the behavior of the "indolent" lesion. Possibly its resistance to treatment is at least partly a fact and not entirely the result of an inadequate physician or an uncooperative patient.

SUMMARY

1. A series of private patients has been studied with the intention of determining the cause of reactivation.

2. In 65-70 per cent of the group renewed activity of the tuberculosis seems to have been the result of the revascularization of nodular lesions or obturated cavities.

3. It has been shown that both multiple small nodular lesions and obturated cavities behave with considerable similarity.

4. It is suggested that resection of the clustered nodules may be considered under special conditions:

a. When it is understood that this resection is undertaken purely as a prophylactic measure after full control of tuberculosis has been accomplished.

b. When there has been at least one and preferably more than one episode of renewed activity.

c. When future evidence does not establish that repeated hematogenous seeding is responsible for a significant number of reactivations.

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PARTIAL PULMONECTOMY*

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Phoenix, Arizona

Partial pulmonectomy is used to designate the following operations; (a) lobectomy, (b) bilobectomy, (c) segmental pulmonary resection, (d) local excision of pulmonary tissue and, (e) cavity enucleation. Partial pulmonectomy is therefore excisional pulmonary surgery, but for the purposes of this paper it does not include pneumonectomy. This operation has been used in the treatment of bronchiectasis, tuberculosis and coccidioidomycosis, plus one case each of emphysematous bleb and gunshot wound.

SUMMARY OF SURGICAL RESULTS

The first chart depicts the results in bronchiectasis and tuberculosis. There were thirty-four operations for bronchiectasis. Lobectomy was performed in thirty-one cases, bilobectomy in two cases and segmental resection in one case. There was one death during surgery, due to cardiac arrest. There were twenty-two operations for tuberculosis. Lobectomy was performed in seventeen cases, bilobectomy in two and segmental resection in three cases. There were no deaths in this group of patients. The cases designated as cured were those individuals who had returned to normal activities for a period of at least one year, and whose sputum, gastric smears and cultures had been negative repeatedly during that time. Those individuals listed as possible cure had negative studies, but who had been observed less than one year and who had not returned to normal activities. With one exception all individuals in this group received streptomycin and/or para-aminosalicylic acid before and after their surgery.

CHART 1

Bronchiectasis		Tuberculosis	
Total Cases—34		Total Cases—22	
Cured (23)	67%	Cured (7)	32%
Exp. Cure (2)	6%	Poss. Cure (9)	41%
Improved (5)	15%	Improved (2)	10%
	88%		83%
Unimproved (3)		Unimproved (1)	
Worse (1)	12%	Worse (3)	17%

The second chart depicts the results in coccidioidomycosis. Lobectomy was performed in four cases, segmental resection in two, local excision in two and cavity enucleation in one case. Particular attention is called to the one case marked unsatisfactory. Following lobectomy the patient developed a broncho-pleural fistula complicated by empyema. Open drainage of the empyema followed by extensive thoracoplasty resulted in closure of the broncho-pleural fistula and obliteration of the emypema space. Thereafter a chest wall infection persisted. For over two years unsuccessful attempts were made to eradicate this chest wall infection. Curretage of the sinus tracts was ineffectual. She also received X-ray therapy, and chemotherapeutic and antibiotic drugs. She has received prodigiosn intravenously and locally. Prodigiosin caused her a good deal of discomfort due to phlebitis and high fever but had no effect on the coccidioidomycosis. Streptokinase and streptodornase locally was ineffectual. This one case is enough to emphasize the fact that coccidioidomycosis may occasionally prove to be a very difficult problem.

*Read before Sixtieth Annual Session of the Ariz. Med. Assoc., Tucson, May 1, 1951.

CHART 2
COCCIDIOIDOMYCOSIS

Indication	Operation	Complic.	End Result
1. Cavity Infection Hemorrage	Local Excision	0	Cured
2. Large Cavity	Lobectory	0	Cured
3. Cavity Infection	Segmental Resection	0	Cured
4. Cavity Infection	Enucleation of Cavity	0	Cured
5. Cavity Sp. Pneumo. Empyema	Lobectomy Decortication	+ Partial Stenosis Middle Lobe Bronchus	Improved
6. Large Cavity	Lobectomy	+ + B. P. Fistula Empyema	Unsatis.
7. Cavity Sp. Pneumo. Empyema	Thoracotomy Cavity Enucleation Decortication	0	Cured
8. Tumefaction	Local Excision	0	Cured
9. Tumefaction	Local Excision	0	Cured

The third chart is a summary of all cases. Partial pulmonectomy was performed in sixty-seven cases with one death.

DISCUSSION

Experience gained from this group of cases has led to some observations worthy of recording. Probably the most important observation has to do with the position of the patient on the table. Some thoracic surgeons and anesthetists are convinced that it makes no difference what position is used. Such was the conviction of the author in the beginning of this series of partial pulmonectomies. With increasing experience a definite preference for the face-down position has resulted. Particularly in large individuals, in individuals of questionable respiratory reserve and in individuals with excessive secretions it is now considered obligatory. There is no doubt the patients withstand a prolonged procedure much better. Furthermore it is less fatiguing to the surgeon from a technical standpoint.

CHART 3
PARTIAL PULMONECTOMY
Excisional Surgery in Sixty Seven Cases

Indication	Number	Deaths
Bronchiectasis Adenoma-1: Broncholith-1 Lung Abscess-1	34	1
Tuberculosis Carcinoma-1	22	0
Coccidioidomycosis	9	0
Emphysematous Bleb	1	0
Gun Shot (Transection of the Lingular Bronchus left upper lobe)	1	0
Total Cases	67	1

Another observation which may be common knowledge but is seldom emphasized has to do with sustained hypertension. Interruption of the operation should be practiced routinely when the systolic blood pressure is maintained at an abnormally high level for as long as ten minutes. If the anesthetist cannot correct this within a second ten minute period, then the operation should be abandoned. Such an occurrence means cerebral anoxia and/or an increase in the carbon dioxide tension of the arterial blood. Continuation of the operation in the fact of such danger signals is inviting disaster.

Persistence of positive sputum, in cases of tuberculosis following pulmonectomy may be due to ulceration around the sutures used to close the bronchus. On two occasions removal of the sutures through the bronchoscope resulted in prompt healing of the stump and a conversion to negative sputum.

CONCLUSIONS

The operation of partial pulmonectomy is a safe procedure, but the results must be qualified according to the disease for which the survey is performed. Results are herein recorded showing a cure of the greater portion of individuals with bronchiectasis and coccidioidomycosis by surgery. Partial pulmonectomy for tuberculosis cannot be accurately evaluated in the immediate postoperative period. This operation does not ordinarily result in removal of the entire diseased area. At best the surgeon removes only the largest or most active focus of infection. Despite what help the patient may receive from streptomycin and allied drugs, it is evident that the patient's immunologic forces must still play the major role in overcoming and holding the remaining tuberculosis in check. Those who are eventually classified as cured must be so classified only after careful and prolonged follow-up studies.

SOME PROBLEMS OF INTESTINAL OBSTRUCTION

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Intestinal obstruction, in spite of advances in diagnosis and management, remains one of the most serious problems in surgery.

The incidence of obstruction remains high. Although a high salvage rate from peritonitis of various causes has now been attained, these same salvaged patients at a later date, constitute a larger group in whom intestinal obstruction, particularly from bands and adhesions, may be expected to occur.

The high incidence and the great variety of causes of intestinal obstraction was noted in a survey completed by the author (1) in 1947, as shown in Table I.

TABLE I

Incidence of Acute Intestinal Obstruction at the Los Angeles County Hospital, 1941 to 1945.

Obstruction by Bands and Adhesions	359
Early postoperative	31
Late postoperative	274
Without previous surgery	54
Strangulated External Hernia	292
Carcinoma of Colon	105
Sigmoid and Descending Colon	90
Splenic Flexure	9
Transverse	6
Hepatic Flexure	9
Caecum and Ascending Colon	11
Volvulus	72
Large Bowel	27
Small Bowel	45
Carcinoma of Rectum	27
Diverticulitis	24
Intussusception	39
Strangulated Internal Hernia	11
Mesenteric Thrombosis	38
Congenital Anomalies	32
Imperforate anus	13
Congenital atresia	7
Megacolon	4
Meckel's diverticulum	8
Gallstone or Foreign Body	7
Endometriosis	2
Regional Ileitis	4
Extrinsic Tumor	5
Primary Tumor of the Small Bowel	3
Metastases, terminal	51
Obstruction from Superior Mesenteric Artery	2
Tuberculosis of Caecum and Peritoneum	5
Radiation Obstruction	1
Stricture of the Rectum	5
Trauma	3
Total	1,107

Read before Sixtieth Annual Meeting of Arizona Medical Association, Tucson, Arizona, April 30, 1951.

TYPES OF OBSTRUCTION:

There are essentially two types of intestinal obstruction, the so-called simple obstruction and the strangulating obstruction.

Simple obstruction is represented by those cases in which there is a blockage of the continuity of the bowel. In strangulating obstruction there is in addition a compromise of the blood supply. Although the definition of both appears simple, the clinical differentiation is by no means as easy. Common examples of obstruction which are always of a strangulating nature are: strangulated external and internal hernias, volvulus and intussusception. Common examples of simple obstruction are those caused by bands and adhesions. In McKittrick's (2) series, 32 per cent of obstructions caused by bands and adhesions were strangulated, and in Dixon's (3) group at the Mayo Clinic 26 per cent were strangulated.

In the simple obstruction, death is caused by gaseous distention, fluid and electrolyte loss, and possible toxic absorption. In strangulating obstruction there is an additional factor of plasma and blood loss, shock, peritonitis and actual necrosis of the bowel itself.

Hartwell (4) has shown that death in simple obstruction of the upper small bowel is due to electrolyte loss which can be controlled by intravenous saline solution.

Wangensteen (5) has demonstrated that the gaseous distention is almost wholly due to swallowed air, and the use of indwelling gastric siphonage is based upon his findings. In simple obstruction the accepted method of treatment is decompression with fluid and electrolyte replacement, whereas early surgical interference is paramount in the strangulating lesion.

As stated, the differential diagnosis between a simple and a strangulating lesion is not easy, and what at first may be a simple obstruction

may in a short time become a strangulating obstruction, as evidenced by the (25%) band adhesions which are strangulating and the obstruction of the large bowel which soon becomes strangulating because of the closed loop caused by the ileocaecal valve.

The criteria for the diagnosis of intestinal obstruction are fairly clear cut, but the preoperative diagnosis between a simple and a strangulating lesion is often difficult. Wangensteen (6) states that a differential diagnosis can frequently be made by spot tenderness, due to peritoneal irritation present in the strangulating lesion. Dennis and Brown (7) state that pain persisting between cramps, tenderness and rebound tenderness, and shock are characteristics of strangulation. To this Eliason and Welty (8) have added tachycardia and leucocytosis.

At the Los Angeles County Hospital, peritoneal aspiration to determine the presence of bloody fluid has occasionally been used in the past several years; a method also recommended by Hill and O'Laughlin and Stones. (9) By this method a No. 19 spinal needle is inserted into the two lower, and occasionally all four, quadrants of the abdomen. The author has always observed this procedure with apprehension, yet cannot recall of any serious consequences.

Others emphasize the progression of symptoms in spite of supportive therapy. Evans and Bigger (10) have noted a characteristic "position of relief" which the strangulated patient is likely to assume.

In a recent study F. Reinus (11) attempted to point out diagnostic criteria in strangulated obstruction of the small bowel. He classified his patients into three categories: simple obstruction, obstruction with imminent strangulation and obstruction with strangulation. It appeared impossible to point out criteria of imminent strangulation but the following criteria were present in strangulation:

(1) Steady abdominal pain with sudden onset.
(2) A seriously ill patient by clinical evaluation.
(3) Body temperature over 101°.
(4) Pulse rate over 100.
(5) The absence of distention in most cases of strangulation.
(6) Abdominal tenderness.
(7) A mass on abdominal, rectal or pelvic examination.
(8) The presence of blood in vomitus or feces.

Claude Hunt (12) states that Radiography of the abdomen is the most accurate method of diagnosing obstruction and differentiating the type. Simple occlusion with good circulation produces a stepladder pattern of the bowel and allows valvulae connivents to be seen. Strangulation, he states, is shown by lack of a definite pattern. The affected loop is irregularly distended and dark, while valvulae conniventes are invisible or indistinct. Distention, proximal to the loop, begins slowly and is seldom noted early.

In the differential diagnoses there are obviously many factors to be taken into consideration, as briefly outlined on page 28.

In differentiating between simple obstruction, Finney (13) makes this statement: "One rule can be fairly definitely laid down, namely, if colicky pains continue after decompression of the stomach and there has been time for even partial restoration of fluid balance, immediate surgical exploration is necessary."

LARGE BOWEL VERSUS SMALL BOWEL OBSTRUCTION:

The question as to whether an obstruction is in the large or small bowel can frequently be determined by a careful history and physical examination. Obstruction of the rectosigmoid area is the most frequent cause for large bowel obstruction. There the colon is narrower and the lesion, usually carcinoma, is more constricting than the right-sided lesion. Small-bowel obstruction is characterized by early vomiting and late distention with x-ray findings of gas in the small bowel with no gas under tension in the empty colon. In the large-bowel obstruction, distention occurs early, vomiting late, and the large bowel by x-ray is under gaseous tension. In the flat plate x-ray the mistake of interpreting a small bowel under tension as being large bowel is occasionally made. Although large bowel obstruction is primarily a closed loop affair, the ileocaecal valve is incompetent in probably 20 per cent of patients. In these, although obstruction be in the large bowel, gas may also have refluxed into the small bowel. If the least doubt exists, a barium enema should be made.

VOLVULUS:

Patients suffering from a volvulus are likely to have a sudden onset. The patient appears ill from the onset and may be in shock, and

DIAGNOSTIC FEATURES OF SIMPLE AND STRANGULATING OBSTRUCTION.

	Simple	
PAIN:		
1.	Insidious or abrupt	1. Sudden severe most cases
2.	Free intervals	2. Constant with intermittent exacerbations
VOMITING:		
1.	Present	1. Present more frequently
APPEARANCE OF PATIENT:		
1.	Early not ill	1. Ill from start
2.	Painful expression only during colic	2. Constant painful expression more during colic
3.	Legs not drawn up	3. Legs likely drawn up
4.	Shock–never	4. Shock–fraily frequent
ABDOMINAL FINDINGS:		
1.	Distention	1. Distension
2.	Tenderness absent	2. Tenderness present
3.	Rigidity absent	3. Rigidity sometimes present
4.	Mass absent	4. Mass often present
5.	Hernia rings empty	5. Hernia rings?
6.	Ueristaltic sounds metallic or bubbling with peristaltic wave	6. Peristalsis may be absent or low pitched
X-RAY		
1.	Indicates only obstruction	1. Indicates only obstruction in most cases
2.	Stepladder with valvulae conniventes	2. Distended loop irregularly distended and dark; valvulae conniventes not distinct
ABNOMINAL TAP:		
1.	Fluid never bloody	1. Bloody fluid always indicates strangulation

the pain is more or less constant. Although when the patient is in shock, pain may not be apparent. There is early tenderness and often rigidity. These patients will often assume a position of lying either on the right or left side, with legs drawn up–the "position of relief" as recently described by Evans and Bigger. (10) The abdomen may early be silent. A spinal needle introduced into the abdominal cavity is frequently a valuable aid. A bloody tinged return from abdominal tap indicates a strangulating lesion. The x-ray usually indicates obstruction but may be of no conclusive aid in differentiating a strangulating lesion, although the criteria mentioned by Hunt, (12) if definite may be of material aid in diagnosis.

Volculus of the large bowel occurs in a 3 to 1 proportion in the sigmoid. The history of previous acute attacks of short duration plus the inability to introduce 500cc. of water by enema has been considered diagnostic in volvulus of the sigmoid by Wangensteen, (6) Barton, Meyer (14) and others, but we have not felt this to be a valuable aid. The history of a fairly sudden onset plus an x-ray picture of a large sigmoid loop, however, have been diagnostic aids.

INTUSSUSCEPTION:

The diagnosis of intussusception in children, with its frequency of a mass and frequency of a bloody stool and the current jelly on the rectal examining finger, should not be difficult.

HERNIA:

Strangulating internal hernias are rare, and the exact diagnosis is infrequently made before surgery. An x-ray finding, however, of loops of small bowel under tension bunched primarily on one side or the other of the midline should make one suspect paraduodenal hernia. Pain down the inner thigh should make one suspect obturator hernia, particularly if by bimanual examination loops of bowel can be felt in either side of the pelvis.

Diagnosis of strangulating external hernia should be simple, and yet there are patients in whom the hernia is completely missed. This is particularly true in the small femoral hernia. The importance of the necessity of routinely palpating the inguinal and particularly the femoral areas cannot be over emphasized, as local

pain and tenderness will be absent in at least 20 per cent of patients.

Laufman and Daniels (15) have recently reviewed strangulated hernia occurring at Michael Reese and Northwestern University Hospitals. They found that 62 per cent of strangulation occurred in inguinal hernia and 19 per cent each in femoral and umbilical hernia. It is for this reason that the small femoral hernia is not infrequently overlooked.

MANAGEMENT:

The following steps are suggested in the early management of a suspected strangulating obstruction.

1. Do a careful history and physical examination, noting particularly the appearance of the patient. Note just how sick he is. Is the pulse elevated? Is he in constant pain? Are there peristaltic rushes with the pain? Is there early distention? Is there point tenderness between peristaltic waves? Is there a mass? Are the inguinal rings and femoral canals empty? Does a rectal examination reveal a mass or blood?

2. Insert immediate indwelling pastric nasal siphonage. The Miller-Abbott tube is frequently impractical because of the difficulty of introduction beyond the pylorus.

3. Start fluid electrolyte replacement immediately and do urinalysis and obtain blood for count and typing.

4. While the first electrolytefluid replacement is still running, the patient is taken to x-ray for a flat plate of the abdomen preceded by an enema. If in doubt between lower and upper bowel obstruction, a barium enema should be made.

5. If after electrolyte replacement is well going, and if crampy pain persists after the stomach is decompressed, the patient should be taken to surgery immediately and blood and plasma started before the abdomen is opened in all cases.

6. Suction with indwelling tube should be considered an adjuvant in the diagnosis and treatment of intestinal obstruction, and should never be allowed to act as a sedative to the surgeon who may awaken too late to find that he has missed a strangulating intestinal obstruction.

7. In the operative procedure, combating markedly dilated loops of bowel in an attempt to locate the obstructing band is ill advised. The danger from trauma and even laceration is far greater than the danger of deflation of the gut by a needling or trocar procedure.

8. Closed, so called aseptic, resection have no superiority over open anastomosis, providing the bowel has been aspirated to prevent spillage.

9. In the surgical management of the large bowel obstruction the ordinary caecostomy is inferior to transverse colostomy, as the former does not defunctionalize the bowel and further preoperative preparation of the interval bowel between caecostomy and the causative lesion becomes difficult. Caecostomy, however, has a definite place in those cases where there is a tremendous amount of distention with imminent danger of perforation of the caecum. Gatch, (16) incidentally, makes the statement: "I believe that there is abundant evidence for the belief that the cause of death in obstruction of the large bowel is always perforation of the bowel." When a caecostomy is performed we haxe preferred the method described by Daniels (17) and a similar one described by Claude Hunt (18) in which their respective, and incidentally very similar, clamps are applied across the exteriorized caecum.

10. Although carcinoma of the sigmoid constitutes the far greater number of obstructions of the sigmoid, one must always be mindful of the possibility of volvulus of the sigmoid. A history of a relatively sudden onset, an x-ray suggesting a large twisted sigmoid loop, and a bloody tinged peritoneal fluid encountered when the abdomen is opened must be considered volvulus until proven otherwise. Needless to say, it is a tragically 100 per cent fatal error to perform a caecostomy or colostomy for volvulus of the sigmoid. Many authors, most recently Hilton and Waugh (19) of the Mayo Clinic, have stated that resection is the method of choice. In those cases we have favored the Mikulicz procedure.

11. In the postoperative management of these patients the antibiotics, fluid and electrolyte replacement are continued, adding potassium on the third day. Blood is given as necessary. Continued suction is carried out until peristalsis is reestablished. With careful management of every detail a lowered mortality should be obtained in intestinal obstruction.

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LARYNGEAL VERTIGO

With Report of Two Cases

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Laryngeal vertigo, known also as laryngeal epilepsy and as tussive syncope (McCann et al, 1949), in which unconsciousness, with or without convulsions, follows vigorous coughing, was first identified as a clinical entity by Charcot in 1876, though Thomas Sydenham in 1679 had remarked upon the vomiting and vertigo which sometimes accompany the severe tussis of grave respiratory disease. The syndrome is perhaps not widely recognized by physicians, but it is probably far from uncommon. Whitty's review in 1943 recorded 85 cases from the literature, and several have since been added. Adams (1936) reported seeing three instances in a period of a few months, and the two patients described in this paper were encountered in successive years, in one of those coincidences which never fail to confound the practitioner.

From the time of the earliest descriptions, the symptom complex has been noted to occur in obese men of middle age, often hypertensive and emphysematous, suffering from chronic laryngitis or bronchitis. Many have been heavy users of tobacco. The cough which precedes the fainting or seizure is most often strong and paroxysmal, but in some reports the cough is specifically stated to have been mild. Proudfit and Karnosh (1949) say that it is distinctive in nature and usually heralded by a tickling sensation in the throat. During an attack the larynx is said to present a picture of glottis and sphincter closure (Jackson and Jackson, 1947). The disturbance of consciousness ranges from mere transient giddiness to a grand mal ictus with prolonged coma.

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REPORT OF CASES

Case 1. This somewhat overweight 51 year old white male pensioner was examined at the Veterans Administration Hospital, Tucson, Arizona, on July 11, 1950, on the occasion of a routine check-up. He had been adjudged totally disabled, and his medical condition is adequately attested to by the established diagnoses of arteriosclerotic heart disease with coronary sclerosis, cor pulmonale, and obstructive emphysema. In 1946 he had developed attacks of hard coughing, during which he would lose consciousness, become stiff and twitch. The episodes were irregular in occurrence and rather infrequent; he stated that he had had "about a half-dozen" in the past two years. Three months prior to the time of examination he had suffered from a typical seizure while driving his automobile, as a result of which he had driven off the road and wrecked his vehicle, though he had fortunately not been seriously injured. The patient could recall no aura and did not feel that the cough which preceded syncope was in any way unusual except for its severity. During each period of coma, which evidently lasted some minutes, he had what had been described to him by observers as a fit, and which was obviously a grand mal succession of tonus and clonus. However, he had never experienced incontinence or tongue-biting. Often he would regain consciousness while still clonic, and after an attack he

was sleepy and confused. There was no family history of convulsive disease. The past history was non-contributory. The principal present symptoms which could be ascribed to his cardiovascular disease were dyspnea and undue fatigue. He had no bronchitis or laryngitis.

Psychiatric examination revealed no signicant abnormalities except for a retrograde amnesia, which he himself acknowledged. Neurological survey demonstrated no focal disease. The deep reflexes were all very brisk, but there were no pathological responses. The pupils reacted slowly and incompletely to light. The optic discs were flat and the retinal vessels were essentially normal, without any marked arteriosclerotic alterations.

Routine laboratory tests were within physiological limits. An electroencephalogram was performed on July 19, 1950 at the Tucson Medical Center. A monopolar recording with standard electrode placements was made on a Grass eight channel Model III-c electroencephalograph. The tracing showed a basic 10 per second alpha rhythm, interrupted by slow waves at 5-6 per second in runs and by stretches of 25 per second fast activity. No true seizure configurations were seen, and hyperventilation did not materially alter the potentials. There was no focal distribution of either the slow or fast forms. The tracing was interpreted as demonstrating a mild cerebral dysrhythmia, consonant with an interseizure tracing in an epileptic subject.

Case 2*. This obese 67 year old white male was admitted to St. Mary's Hospital, Tucson, Arizona on September 4, 1949. On the preceding day, during a bout of coughing, he had lost consciousness, fallen, and struck the left parietotemporal area of his head on a tile floor. He was unconscious for a few minutes, but there was no convulsion. Attempts to recall events immediately preceding the accident revealed that there was a considerable retrograde amnesic gap. The only other subsequent symptoms were generalized headache and tenderness of the left side of the cranium. Neurologic examination by another physician shortly after the episode disclosed only dubious, minimal elevation of the optic discs, absence of the right biceps reflex, decreased right abdominal skin reflexes, and failure to obtain the quadriceps and triceps surae reflexes. The past history revealed that the patient had for some years had frequent spells of syncope associated with paroxysmal coughing. No description of convulsions could be obtained, either from the patient or his wife or his family physician. There was no family history of epilepsy. The patient was a known diabetic. In the hospital routine blood count was normal except for a white cell count of 12,250, with 68 per cent neutrophils. The urine showed a two plus sugar and a trace of acetone, while the fasting blood sugar was 210 mgms. per cent. Electrocardiogram demonstrated a left axis shift and a tendency toward a low voltage and was interpreted as a borderline tracing. Roentgenograms of the skull revealed a long fine linear fracture originating in the left parietal bone and extending downward and forward through the superior portion of the temporal bone, terminating in the left temporal fossa. Though none of the clinical stigmata of epidural hemorrhage were present at any time, there was no doubt that the fracture crossed the groove of the middle meningeal artery. Chronic maxillary, frontal and ethmoid sinusitis was also evident. Routine physical examination indicated nothing of importance except for musical rales throughout both lung fields. He had been known for years to have a chronic bronchitis with acute exacerbations.

The patient was seen in neuropsychiatric consultation on the 4th hospital day. There were no evidences of intrinsic psychiatric disease. On neurological evaluation the only focal findings were slight increase in the right biceps reflex, decreased right finger-thumb reflex, and a minimal extensor response to plantar stimulation of the right foot. These were felt to be possible results of injury to the left fronto-parietal cortex. It was also noted that the quadriceps and triceps surae reflexes were absent, but this abnormality was ascribed to the long-standing diabetes. The eyegrounds were normal.

The hospital course was uneventful. The bronchitis was symptomatically relieved; the headache disappeared within a few days; and his diabetes was brought under control by diet and insulin. He was discharged symptom-free after 10 hospital days. An electroencephalogram was not obtained.

DISCUSSION

The cause of the unconsciousness which accompanies the coughing of laryngeal vertigo has

*This case is included with the permission and through the courtesy of Drs. Dan L. Mahoney and Robert E. Hastings, both of Tucson.

been a matter of considerable disagreement. Three major explanations have been advanced: that the manifestation is a genuine epilepsy, that it is a reflex phenomenon, and that it is due to cardiovascular changes which produce cerebral anoxia.

Whitty (1943) espouses the theory that the syndrome is true convulsive disease, either a reflex laryngeal epilepsy, epilepsy with a laryngeal aura, or epilepsy consequent to vascular change in a dysrhythmically predisposed cortex. The observatio nof Proudfit and Karnosh (1949) that there is a peculiar tickling in the throat prior to the onset of the coughing might be adduced as support for this hypothesis. However, there are strong objections to this view as a total explanation. In only one of Whitty's own cases was there an electroencephalogram suggestive of a diagnosis of convulsive illness. Proudfit and Karnosh (1949) point out that a normal brain wave tracing is the rule; all of their subjects had physiological cortical rhythms. Furthermore, most of the patients reported have had simple syncope rather than a convulsion. The belief of Wilson (1931) that laryngeal vertigo is related to cataplexy seems even more untenable. Cataplexy is usually seen as a part of the narcolepsy complex, and no-one has remarked on any concurrence of tussive syncope and narcolepsy. The association of unconsciousness with laughing or excitement incataplexy would seem to be an entirely different mechanism.

A speculation which deserves more consideration is that which assumes a reflex cause for the unconsciousness. The carotid sinus reflex has been considered as operative but Proudfit and Karnosh (1949) dispose of this possibility by pointing out that cough plays no part in the usual case of carotid sinus syncope and that in no case of laryngeal vertigo tested has the carotid sinus reflex been overly active. More acceptable is the idea of a direct reflex originating in the larynx or the bronchi. Proudfit and Karnosh (1949) give this considerable weight in their discussion. They point out that sensory nerve endings are known to exist in the upper respiratory tract, stimulation of which can cause cardiac inhibition or arrest, or that reflex syncope could be mediated through the aortic or cardiac depressor nerve from stimulation of its receptors in the pulmonary vessels. As ancillary evidence, fainting has been produced in some persons by motion of the larynx in the simple act of talking (Penfield and McEachern, 1946). On the other hand, no-one has reported reproduction of the syndrome by stimulating the larynx, and there are no accounts of cardiac inhibition during attacks.

The most acceptable theory is that which ascribes the unconsciousness to changes in the cerebral circulation due to intrathoracic pressure and cardiac alterations. It seems likely that in severe coughing the subject unwittingly performs Valsalva's experiment of forced expiration against a closed glottis. In this maneuver the negative intrathoracic pressure is abolished and a positive pressure substituted; with impeded flow into the right auricle the peripheral venous pressure rises, and the veins of the neck and head become distended (Best and Taylor, 1945). Wilkins and Friedland (1944) demonstrated loss of consciousness in performance of the Valsalva experiment, and recorded concomitant diminution in venous return and cardiac output. Rook (1946) favored the principle that cerebral congestion with anoxia and increased intracranial pressure caused the fainting, and more recently in a detailed study of two patients with laryngeal vertigo McCann and his co-workers (1949) have documented this thesis very convincingly, by cardiac catheterization and cinefluorographic observation during bouts of coughing and during the deliberate performance of the Valsalva maneuver. In one patient syncope and convulsion could be produced, and in both there were extraordinarily high pressures in the right ventricle. In the first there was fluoroscopic evidence of trapping of blood in the pulmonary circulation, as shown by bulging of the right atrium, the venae cavae and the pulmonary conus, and greater density of the hilar root shadows. It was felt that this experiment proved that syncope resulted from cerebral venous congestion, lessened cardiac output, and subsequent anoxemia. They were unable completely to explain the mechanism of the augmented right ventricular pressure and stated that there is perhaps a reflex spasm of the pulmonary artery, in view of the fact that high right ventricular pressures could not be prevented by intubation of the trachea with a bronchoscope. In this connection McCann and his fellow authors (1949) noted the possibility that nicotine from excessive smoking might play a role by affecting the sympathetic ganglia supplying the lungs, since it is

known that the initial application of nicotine to the analogous sympathetic ganglia of dogs causes vasoconstriction. Finally it may be remarked, following Proudfit and Karnosh (1949), that lowering the head of itself effects engorgement of the intracranial vessels and at times subsequent syncope, and that this is just the posture of strenuous coughing.

Even if, as seems likely, the fainting occurring after forceful coughing is due to the intracerebral vascular changes occurring as the result of an increase in intrathoracic pressure, the few cases remain to be explained in which convulsions occur as a complication. Unfortunately electroencephalograms have not been routinely performed. In the first case reported by McCann et al (1949), the EEG was negative, though the patient did have brief clonic seizures. One of the persons discussed by Whitty (1943) and the first patient presented here did have significant cerebral dysrhythmia. It is a supportable thesis that those individuals with tussive syncope who have grand mal attacks during the unconscious period are probably persons with a latent cerebral dysrhythmia. It may be observed that a single negative electroencephalogram means little, since it is well known that an appreciable percent of frank epileptics will show normal tracings. On the other hand, the majority of the cases of tussive syncope, in which no convulsions develop, are probably subjects with electrically normal cortices. In our second patient an electroencephalogram was not obtained, but there is no reason to suspect that it would have been pathological, since his many episodes had never once been epileptic. Anoxia of itself will not produce seizures, but oxygen lack can act as a sufficient trigger for a convulsion, probably by predisposing to a cortical electrical build-up through interference with the competence of the homeostatic mechanisms which control the carbon-dioxide level. (Gibbs and Gibbs, 1950). Recently Kershman (1949) has discussed a group of patients with very rare seizures, one, two, or three in a lifetime. For such individuals he proposes the term "encephalosyncope": Gibbs, Gibbs and Lennox (1937) had previously suggested the term "cerebral dysrhthmia," though the usage "latent epilepsy" has been in more common neurological employment. The general purpose of such euphemisms has been to avoid stigmatizing patients by use of the word "epilepsy," which obviously has a more serious clinical significance. One of the subgroups described by Kershman (1949) is comprised of persons with a diffuse slow dysrhythmia in the electroencephalogram and a history of rare attacks, precipitated by fatigue or emotional or physical stress. It would seem entirely possible that patients with laryngeal vertigo, who have convulsions in association with coughing but at no other time, might well fall within this group, particularly when they can be shown to have a diffuse dysrhythmia, as was the case with the second man herein described. The grand mal would then be explained on the basis of a pre-existing electrical cortical abnormality of a subclinical variety, raised to the level of epileptic ictus by cerebral vascular changes. Additional proof might be given by testing a number of known epileptics with the Valsalva maneuver, to see if convulsions could be produced. However this experiment would not be conclusive, since epileptics vary in their convulsive responsiveness to various stimuli. In the last analysis it will be necessary to test cases of laryngeal vertigo with serial electroencephalograms to see if the hypothesis is sustained that those having seizures as a part of the symptom picture show a cerebral dysrhythmia, while those with simple syncope posses normal cortical potentials.

SUMMARY AND CONCLUSIONS

Laryngeal vertigo or laryngeal epilepsy is a syndrome in which severe coughing brings about unconsciousness. The probable reason for the fainting is that in coughing the patient performs the Valsalva maneuver of forced expiration against a closed glottis, increasing intrathoracic pressure, causing venous congestion of the head, lowering cardiac output, and bringing about cerebral anoxia. If it were not for the usual conservative adherence to established medical nomenclature, it would be best to advise the term tussive syncope, as suggested by McCann and his co-workers (1949), for the symptoms have nothing to do with the larynx, vertigo is not present, and epilepsy occurs rarely and then only as a complication in predisposed persons. Two cases are here reported as examples of the syndrome with and without convulsions. When grand mal attacks occur during the syncopal episode, it seems likely that the patient has a latent cerebral dysrhythmia. Therapy narrows down to symptomatic treatment of the cause of the cough. In cases with an epileptic com-

ponent, anti-convulsants should presumably be prescribed.

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BASIC SCIENCE SEMINAR

PHARMACOLOGY OF THE ANTIHISTAMINIC DRUGS

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Since ancient times it has been known that certain ordinarily inocuous substances produce in a few people violent disturbances such as skin rashes, hay fever or asthma. Obviously, such disturbances are not entirely due to the exciting agents which are frequently such materials as eggs, oysters, strawberries, pollen inhalations, etc. Undoubtedly there prevails an individual predisposition (the so called allergy) which manifests itself only when the subject comes in contact with the offending substance. The nature of this predisposition and the primary pathogenesis of the disease symptoms became known when attempts were made to immunize dogs against poisonous substances by repeated injections. Instead of the expected preventive or prophylactic action the opposite occurred: a few seconds after a second injection of the substance the dog vomited, developed dyspnea and died within an hour. Post mortem examination showed marked congestion of the liver and intestines. The reversal of prophylaxis was called anaphylaxis.)Richet et al 1898).

All proteins, even non-poisonous ones, may produce anaphylaxis in a variety of animals. The reaction is specific for the protein first injected. When the first (sensitizing) reaction has been made with horse serum the same serum must be reinjected if anaphylaxis is to be obtained. Once established anaphylaxis remains for a long time but can be relieved by repeated small injections of the specific protein. An animal which survives the anaphylactic shock produced by a second injection, becomes immune to subsequent injections.

Sensitization or anaphylaxis may occur from very small doses; as little as 0.00000005 mgm intravenously or subcutaneously of egg white may sensitize a guinea pig after an interval of 6 to 10 days (incubation period) (Sewall 1914). Maximum sensitization is reached faster with low than with high doses. Injection of serum of a sensitized animal transfers sensitization to the animal receiving the injection; but anaphylaxis is also located in tissues since a sensitized animal cannot be relieved of his anaphylactic response by transfusion with fresh blood. The provocative dose must be larger than the sensitizing one.

These experimental findings, particularly the striking smallness of the sensitizing dose, explains why an anaphylactic or allergic condition is produced in man through the absorption of diminutive amounts of foreign protein by injestion (food protein), inhalation (Pollen, various dusts), through trauma and burns (degraded tissue acting as foreign protein) or through infections (bacterial Protein). An anaphylactic state thus produced constitutes a true allergy.

The animal experiments described also point to a method of treatment-desensitization by injection of small doses of the sensitizing substances (Prausnitz-Kuestner). Intracutaneous injections are made at different sites with a large

number of materials of protein nature which are known to produce allergy; the so called antigens. The specific antigen can be recognized by local inflammation (manifested by a wheel which it produces around the site of injection.) This antigen is then repeatedly injected in small doses in order to effect immunization. The method, although cumbersome and difficult to use, is still the method of choice in order to obtain a cure of the allergic state.

The specific antigen determined by the skin test is hardly ever defined with a fair degree of accuracy. Usually it can only be designated according to the source of its origin. Evidently such a poorly defined material must also be of variable composition—which may account for the uncertainty of the results obtained by immunization.

The difficulty of finding the specific antigen is furthermore increased by the fact that the toxic manifestations produced by a multitude of antigens are always quite similar to each other. They resemble histamine poisoning as was first pointed out by Dale and Laidlaw in 1910. Much evidence incriminating histamine as the mediator of anaphylaxis has been collected.

Histamine can be demonstrated as a normal tissue constituent so that there is reasonable evidence for the source of histamine in anaphylaxis (Best et al, 1927). The variation in the anaphylactic manifestations in different species can be explained on the basis of quantitative variations in histamine content. The lungs of guinea pigs and the livers of dogs are reduced in histamine content in anaphylactic shock (K. Watanabe, 1931). A histamine-like substance can be demonstrated in the blood and thoracic duct lymph of the dog during the anaphylactic attack, and in the blood of the guinea pig. The amounts of unbound histamine found in the anaphylactic dog in the blood of the inferior vena cava are similar to those amounts which are required to produce the same vascular changes by intravenous injection (Dragstadt and Meade 1936) whereas in the normal blood of man horse, goat, calf, and guinea pig, 70% to 100% of the histamine present is not free but held in the white blood cells (Code 1937).

All these findings show that histamine constitutes a potent factor in the production of the symptoms of anaphylaxis.

However, not all anaphylactic manifestations can be explained on the basis of histamine action. One such phenomenon is the incoagubility of the blood. This can be accounted for by the increased production of heparin in anaphylaxis. But other anaphylactic manifestations, not attributable to histamine, are still of obscure origin. Examples are the increased blood coagulability in the beginning, the leukopenia, the changed sedimentation rate and the delayed death from anaphylactic shock occurring in some instances.

Obviously, histamine alone does not account for all symptoms of the anaphylactis shock. Nor is pure histamine invariably the sole causative agent. There may be histamine-like substances sometimes called H-substances.

Concerning the mechanism of the anaphylactic reaction it may be assumed that the sensitizing injection leads to the formation of enzymes which decompose the foreign body protein. Subsequently, when the provocative dose is injected, this enzyme leads to the rapid decomposition of the foreign body protein, whereby histamine in larger than normal amounts is formed.

Nonspecific drugs which partly relieve allergic symptoms in some cases are epinephrine, pituitrin and calcium salts none of which specifically antagonize histamine.

A direct attack on the problem of non-specific allergy treatment was successful only after specific anti-histamine drugs had been found. The modern treatment of allergy is based on the use of such specific compounds. They probably act by means of competitive attachment to cell receptors, thereby displacing histamine from its site of action.

Plain amino acids, notably arginin, were first found to have some such action on the sensitized rabbit gut in vitro, but they proved not sufficiently active and too toxic for practical use (Edlbacher 1937). Compounds effecting competitive substitution more efficiently were discovered by workers in E. Fourneau's noted laboratory in Paris, who synthetized a series of ether-like compounds composed of various substituted phenols linked to amino alcohols. The phenolic ethers proved too toxic. Another line of antihistamine compounds was synthetized in 1912, in France by Mosnier and studied by Halpern in 1942. These drugs were substitution products of ethylene diamine $H_2N–CH_2–CH_2–N$; $(CH_3)_2$

In this simple compound, two methyl groups are substituted into one of the amino groups.

The other amino group is substituted by more extended groups so that the pattern of all these compounds is

substituent I
substituent II
$N-CH_2-CH_2-N(CH_2)$

Out of a large number of such compounds synthetized by Mosnier the least toxic and the most efficient ones were:

1) Antergan in which substituent 1 is a phenyl group C6H5
Substituent 11 is a benzyl group C6H5CH2
(B.N.Halpern 1942).
2) Neoantergan in which substituent 1 is a methoxy benzyl group
Substituent 11 is a pyridyl group
(D. Bovet 1944)

After the war this line of research was continued in the United States. Additional ethylene diamine derivatives were synthetized and tested for antihistamine action. The most successful of these compounds is pyribenzamine a dimethyl ethylene diamine in which substituent 1 is a benzyl group C6H5CH2 and substituent II is a pyridyl group. (Mayer, Huttner and Scholz 1945).

This differs from neoantergan merely by the omission of the methoxy group. Nevertheless this slight omission considerably improves the action. Pyribenzamine is the most promising antihistamine agent yet known.

Pyribenzamine is used as the hydrochloride, (synonym diamino benzopyryl Chemically dimethyl-benzyl phyridyl-ethylene diamine hydrochloride), colorless, stable in aqueous solution 1 part dissolves in 0.8 parts of water, ph of solution 6.6 to 6.7.

In experiments on asthma and convulsions produced in guinea pigs by inhalation of histamine, the subcutaneous injection of 0.1 mg/kg of pyribenzamine HCL equally effective as a preventative as 1.0 mg/kg of antergan. Mayer, Huttner and Scholz 1945.

Like other antihistamine agents pyribenzamine is primarily a relaxing drug, the relaxation being specificaly active whenever the contraction is produced by histamine. Thus, as little as 0.02 microgram per cc. of pyribenzamine prevents the contraction of the guinea pig intestine elicited by 1.0 microgram per cc. of histamine phosphate. Pyribenzamine is much less active when the contraction is produced by acetylcholine. (R. L. Mayer 42) In the isolated guinea pig lung which is perfused according to Langedorf, the constricting effect of 50 microgram of histamine is prevented or inhibited by 25-50 micrograms of pyribenzamine. This protection lasts for one hour.

When bronchial tone is measured by the Jackson plethysmograph, 5 to 50 micrograms of histamine produces a constraction of the bronchial muscles in some cases at least. This contraction is entirely prevented by pyribenzamine 1-3mg/kg for as long as four hours or more. 3.5 mg/kg of pyribenzamine is sufficient to protect a dog against anaphylaxis.

The maximal tolerated dose is 20 mg/kg in the guinea pig. Toxic doses produce excitation up to the point of convulsive seizure. (Yonkman e.a. 1945). Pyribenzamine has inhibiting action on histamine salivation in cats; it prevents or inhibits histamine whealing in cats and in rabbits.

In a man pyribenzamine inhibits the whealing from histamine specific antigen been venom, and such drugs as atropine physostigmine or pilocarpine particularly on local application.

The salivary secretion in the cat is sensitive indicator for the action of histamine, as little as 10 micrograms of it injected into the Carotid artery promotes salivation on the same side as measured by a cannula in Wharton's duct. This may be entirely prevented by the antihistaminic drugs.

CLINICAL USES. In acute urticaria, a typical allergic disease, relief is obtained by pyribenzamine in 93% of the acute cases and in 75% of the chronic cases. (Arbesman e. a. 1946) In a series of 37 patients with urticaria and angioneurotic edema 78% obtained satisfactory relief. (Feinberg and Friendlander 1946.)

Pyribenzamine was also effective in the relief of dermagraphism and urticaria factitia. It relieves the itching of acute and chronic atopic dermatitis in 80% of the cases, also the itching of pruritus ani et vulvae is controlled by it in many instances.

In hay fever pyribenzamine produces improvement in 85% in vasomotor rhinitis in 58% (Arbesman e. a. 1946). Feinberg and Frienlander in 1946 reported 82 cases with 64% success in these cases. Relief was more noticeable in those cases which had received desensitizing treatment. The 1946 ragweed season, during which these tests were made, was unusually

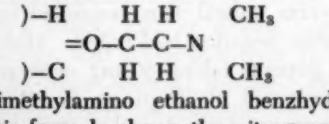
mild, in a more sever hay fever season the relief obtained by the use of this drug might be less. Pyribenzamine combined with ephedrine or aminophylline frequently proved more effective than one drug alone.

In asthma, only moderate relief was obtained in 46% of the seasonal cases and in 37% of the chronic type. The rapid relief of the asthmatic attack obtainably by epinephrine hypodermically cannot be obtained by pyribenzamine orally. Asthma accompanying infection was seldom found relieved by the drug. (Arbesman 1946).

Among 598 recorded cases 23% complained of side reactions; 18% had drowsiness; 13% had dizzines; 10% insomnia; 8% dryness of the mouth and nose; 5% palpitation. On the whole these reactions were not serious.

Humans generally tolerate 600 mg of pyribenzamine daily in divided doses without ill effects. Some allergic patients respond to as little as 50 mg daily. Frequently the dosage must be increased when the patient is exposed to increasing concentrations of the offending allergen, but larger doses produce more side reactions. The average recommended dosage is 50 mg four times daily, preferably after meals. After the symptoms have been controlled the dose is lowered to 25 mg four times daily. If the symptoms are not relieved the dosage is increased to 100 mg four times daily, or even to 150 mg so long as side reactions are not excessive. Intravenous administration of pyribenzamine is not recommended because of the poor tolerance shown by various experimental animals. The LD/50 for rats subcutaneously has been determined as 225 to 350 mg/kg; orally about 536 mg/kg; while intravenously it is 10 to 11 mg/kg.

BENADRYL. Another type of antihistaminic compound is represented by Benadryl, an ether containing two phenyl groups and amino N in an aliphatic side chain. As mentioned previously phenolic ethers have been studied by Fourneau's school but were found to be too toxic. Further development led to less poisonous antihistaminic ethers, among which Benadryl is one of the best. Its chemical structure is:



dimethylamino ethanol benzhydryl ether. As this formula shows the nitrogenous chain; dimethylamino-ethyl is identical with the corresponding chain in pyribenzamine, antergane and neo-antergane, so that it seems that this particular structure is essential for an antihistamine effect in any compound. Like Pyribenzamine, Benadryl is used as the hydrochloride. It is white, highly water soluble and stable in solution.

Its physiological actions are quite similar to those of pyribenzamine. However, benedryl is definitely more depressing than pyribenzamine. In fact, it works as a soporific even in therapeutic doses. Caution is needed in its use on this account.

Its clinical effects are quite similar. It induces relief in such allergic diseases as urticaria, angioneurotic edema, dermographia, serum sickness, also hay fever and vasomotor rhinitis. But in asthma the results are poor or variable as with pyribenzamine. (McElin and Horton 1945).

In the treatment of urticaria this new antiallergic compound was found to be of particular value in:

1. Those patients exhibiting a generalized nonspecific irritability of the skin which is subclinical but which becomes manifest when attempting to do routine skin tests.
2. Maintaining the urticarial patient in comfort for a few weeks until specific desentitization becomes effective.
3. Controlling urticaria following injections of liver extract or penicillin.
4. Controlling urticaria and angioneurotic edema of serum sickness.
5. Relieving both allergic and nonallergic urticaria in the great majority of cases.

Results with Benadryl Hydrochloride in treatment of 52 urticarial patients were usually prompt "and quite amazing". Forty seven of the 52 patients were completely relieved, four were partly relieved and one was relieved of wheals but not of the pruritis. Toss 1946. Benadryl Hydrochloride is an effective agent in relied of pruritis and involution of urticarial lesions. In acute cases such palliation may be all that is required for their management. In cases of chronic urticaria it might afford valuable relief until investigation reveals the causes and adequate control measures can be carried out.

In hay fever McElin and Horton report clinical experience with Benadryl HCL in 100 patients, selected as presenting complaints thought

to be due whole or in part to the release of H substance. These clinicians obtained good to excellent results in 22 of 23 cases of hay fever, 6 to 7 cases of vasomotor rhinitis, 2 cases of Meniere's disease associated with urticaria, 2 of 4 cases of asthma, 2 of 4 cases of histamine cephalgia and 2 cases of urticaria and angioneurotic edema. Further carefully controlled studies in man have been made by these investigators who demonstrated the following physiologic actions of Benadryl HCL.

1. It tends to block the response of gastric hydrochloric to the administration of histamine.
2. It depresses the cutaneous vasodilation action caused by intravenous administration of histamine.
3. Alleviates nasal congestion induced by intravenous administration of histamine.

Benadryl HCL has been particularly effective in relieving symptoms of perennial and seasonal allergic rhinitis. Nasal stuffiness, sneezing, and lacrimation are frequently controlled within one-half hour following a single dose of benadryl and relief may last from six to eight hours. In seasonal allergic rhinitis, especially at the height of the fall pollen counts, larger doses and more frequent administration are necessary. Patients with an associated bronchial asthma may also obtain relief from this condition with Benadryl HCL. Twelve patients who had perennial vosomotor rhinitis were treated with Benadryl; Ten obtained almost complete relief, while two experienced no relief. Marked symptomatic relief was obtained in 4 patients with hyperplastic ethnoiditis. Retraction and disappearance of polypoid tissue occurred and there was diminution of disappearance of purulent discharge. In all cases, however, symptoms returned within 12 hours after discontinuing the drug.

Urticaria, erythema, and pruritis accompanying serum sickness have been relieved by administration of a dose of 100 mg of benadryl every four hours. In some patients, the temperature subsided but joint pains accompanying this condition have not been entirely relieved by this drug. The course of erythema multiforme has been shortened and symptoms alleviated in a number of cases by administration of 50 mg of benadryl every four hours.

The average dose is 50 mg 3 or 4 times daily. In treatment of acute conditions patients should be instructed to await the effect of the first dose for at least 2 hours since partial or complete symptomatic relief may follow the initial dose. In this event a second dose may not be required for 5 or 6 hours. In severe acute and chronic states as many as 200 to 300 mg daily may be required.

Comparative experiments were done with the following antihistamine drugs; antergan neo-antergan, benadryl and pyribenzamine (Feinberg 1946). Whealing from agents producing urticaria is inhibited by all these drugs to nearly the same extent, but pyribenzamine and neo-antergan seem to be most potent in that respect. Experiments were performed which aimed at finding the minimal dose of histamine fatal to guinea pigs which had been injected with 3 mg/kg of any one of these drugs. The following results were obtained:

° 0.4 mg/kg histamine fatal in unprotected guinea pig
2.0 mg/kg histamine fatal after benadryl 3 mg
2.4 mg/kg histamine fatal after antergan 3 mg
15.0 mg/kg histamine fatal after pyribenzamine 3 mg
50.0 mg/kg histamine fatal after neo-antorgan 3 mg

In therapeutic tests, benadryl and pyribenzamine were compared; these two drugs produced nearly equal results in urticaria, atopic dermatitis and in the edema or eruption from penicillin or sulfa drugs (resembling serum sickness). Either one of the two drugs gave better results occasionally. Benadryl proved superior whenever the additional sedative effect was an advantage as in the relief of itching. On the other hand pyribenzamine gave better results in some cases due to the fact that larger doses of this drug are tolerated. In perennial vasomoter rhinitis benadryl gave relief in 15%, pyribenzamine in 64%. The comparative results in other allergic manifesations of the respiratory tract are listed below.

	Relief from pyribenzamine	Relief from Benadryl
Seasonal hay fever	82%	52%
Allergic rhinitis	48%	13%
Asthma	24%	10%

No cases were observed in which Benadryl was of help after pyribenzamine had failed to bring relief, but vice versa several were improved by pyribenzamine after benadryl had failed. More than half of all patients taking 50 mg or more of benadryl complained of sleepiness or other symptoms; dizziness or lasitude were often so

intense that treatment had to be discontinued. The side effects from pyribenzamine were found to be milder and to occur in less than 25% of the cases, the most common side effect being drowsiness which, however, was much milder than that following benadryl. Rarely was pyribenzamine contraindicated because of side effects.

All of these agents give only temporary relief. They are rapidly absorbed and eliminated within a few hours. A more lasting relief of the symptoms can be expected only from immunization. Nevertheless the practical success of benadryl and pyribenzamine has exceeded all expectations. They belong to that small class of drugs for which, immediately after introduction, the demand was so strong that it was impossible to produce enough of the drugs. Undoubtedly a new era in the field of anti-allergic actions has thus been initiated. It seems likely that in the future better antihistaminic drugs will be developed.

ARIZONA MEDICAL PROBLEMS

Consultation and Case-analyses

NOTE—Difficult or unsolved cases are selected from time to time from the practice of Arizona physicians by one of the editors, W. H. Oatway Jr. They are presented to nationally known specialists in the field involved for analysis and opinion.

The *current case* is a serious yet not uncommon problem in internal medicine. It also contains a surgical aspect. The patient had a *jaundice* of indefinite origin, a confusing history, and came to an indeterminate operation.

The *consultant* for the case is Dr. H. MARVIN POLLARD of Ann Arbor, Michigan.

Dr. Pollard is Associate Professor of Medicine in the University of Michigan School of Medicine, a physician in charge of a service at the University Hospital, the associate of Dr. Cyrus C. Sturgis in practice, and an internist who has done considerable clinical research on diseases of the intestinal tract. He has recently published articles on amebiasis, enterogastrone, and other internal medical subjects.

CASE NUMBER XXVI

The patient was *a white male of 46 years*. He came to Arizona from Ohio only two weeks before he was first seen in the office.

His *chief complaint* was a *jaundice* of several days duration, but he had numerous other symptoms and a complicated social and medical history.

The patient's family history was negative, his early medical history included *'spleen trouble'* as a child (with no details, nor any later difficulty), and a freedom from the use of alcohol and from venereal disease. He had had frequent 'colds' all his life.

His *occupation* had been that of a worker in a steelmill, and he had been a foreman for the past 20 years. He had always worked in the foundry section, with exposure to sand-dust from castings.

Six months before his present illness, in May, he developed a *pain in the lower left chest*, fever and sweats, pain in the epigastrium, some difficulty in urination, and constipation. He was sent to a local Ohio hospital, was said to have 'kidney trouble', had sulfa pills, became worse, and was sent to the Cleveland Clinic. An examination of the urinary tract showed it to be normal, but no other diagnosis was made.

He continued to lose weight (from 138 to 110 pounds) and his fever persisted. His hometown doctor found a density in the left chest, sent him to a hospital, and 1½ *quarts of fluid* were aspirated. The fever and pain disappeared and he gained weight.

Three weeks later the *pain in his back and epigastrium* returned, and he went to the Mayo Clinic. They found his kidneys normal, his blood count and sedimentation rate normal, noted the subsiding effusion and a generalized pulmonary nodulation which was considered to be questionably miliary tuberculosis, and advised against an exploratory for the cause of the epigastric pain. They wondered whether it might be a pancreatic lesion.

After resting at home for a time the family came to Arizona to avoid the respiratory infections to which the patient was subject.

Jaundice developed within 2 weeks, and he noted that his urine was a dark brown. The pain in the back persisted, and was 'in the small of his back', medially. By systems he had noted frontal headaches, recent vertigo and double vision, nervousness, insomnia, occasional recent nosebleeds, dry mouth, anorexia, indigestion

from meats, a slight burning pain in the abdomen relieved by liquids, constipation since jaundice, normal colored stools, and a slight but tender swelling of the right hand and knee. Edema of the ankles had been present last year, but absent since. There were no important urinary symptoms.

By physical examination he was seen to be tired and thin, tho his weight was only 5 pounds less than average. There was a moderate jaundice of the skin and sclerae, and a folliculitis of the back. His tongue was pallid and coated, the pulse was 90, BP 112/80, the temperature was 99.4 degrees, and the prostate was normal.

There was a flat tender area in the lower dorsal *spine*. The *abdomen* was flat, slightly tympanitic, and very tender in the right subcostal area. The *liver* was enlarged to 4 cm. below the costal margin, but the *spleen* was *not* enlarged.

Fluoroscopy showed the same changes which were present in a film which had been taken 6 months earlier,—a normal heart and aorta; a calcified Ghon tubercle in the left hilus, a minimal scarred patch in the right apex, and no evidence of pleural disease.

The blood count showed a normal RBC and hemoglobin; a WBC of 6,400, with 69% neutrophiles. *The urine* contained a trace of albumin, one plus sugar, a strongly positive bile test, and urobilinogen in 1:30 dilution. The *Van den Bergh* direct was 4 plus, and the indirect equalled 10 mg. No blood serum amylase was obtained.

A partial gastro-intestinal series showed a normal stomach and duodenum, with *no evidence of a mass* in the pancreatic area.

The original impression had not yet crystallized when two days later his stools became a yellowish-white and his temperature rose to 102 degrees. The stools and symptoms remained the same for a week, tho the fever subsided. He refused hospitalization until the twelfth day. when his stools became less pigmented, he lost appetite and weight, and he became mildly stuporous. His temperature went to 101 degrees and was remittent. The abdominal and spinal pain remained steady and non-colicky, and seemed to be referred to the back.

He was *seen by a surgeon* in consultation in the hospital and it was agreed that the condition was an obstruction of the common bile duct, either by stone or a pancreatic tumor. An exploratory laparotomy was recommended and accepted.

Surgery was performed 2 weeks after he was first seen, and 2½ weeks after the onset of his jaundice. The abdomen contained a large amount of bile-stained serum; *the gall bladder was greatly enlarged and tense; the pancreas was enlarged* to three times normal size but contained no tumor; the gall-bladder, cystic duct, and common duct were free of stones, but *a probe could not be passed thru the common duct* due to a "bowel obstruction a short distance below the cystic duct". A cholecystostomy was performed and the incision closed.

The post-operative condition was fair. The jaundice remained deep in spite of a drainage of 1,000 to 1,600 cc. per day. Supportive diet, fluids, and vitamins were used, but his general condition deteriorated. The fever subsided on the second day, but he was often delirious, the renal function was poor, and he died on the tenth P. O. day. A mecropsy was not allowed.

QUESTIONS:—

1. What was the probable diagnosis in this case?
2. How does the diagnosis fit in with his past history?
3. What tests could have been done to make a diagnosis more certain?
4. How could the situation have been managed to change the course of illness?

CASE ANALYSIS

In answer to the probable diagnosis in this case, I should first like to stress *a few points in differentiation*. The patient's *age* places him in a vulnerable period for both benign, as well as malignant disease, without favoring either to any great extent. The fact that he saw a physician due to his "*jaundice*" leads us directly to some process affecting the biliary system, a very obvious, yet an important point. His story of "*spleen trouble*" as a child, I feel, is more misleading than helpful and I am inclined to discount it. The fact that he has *never consumed alcohol* has its significance when the individual is faced with a possible diagnosis of cirrhosis of the liver. The *occupational history* cannot be passed by lightly and one is forced to keep in mind silicosis with its subsequent association with tuberculosis.

Going on to the more *acute phase* of this patient's illness, he developed pain in the lower

left chest, fever and sweats, as well as pain in the epigastrium six months previously. His initial examination did not, I believe, reveal anything significant associated with the final diagnosis. The administration of sulfa pills could have caused a hepatitis, but I doubt that it did.

The density in the left chest, plus the pleural effusion of one and one-half quarts of fluid, which when removed appeared to have some association with improvement of the fever and relief of pain, seems too simple for a diagnosis of tuberculosis to be made and I believe that it is more likely indicative of *a pulmonary infarction with effusion*, the infarct slowly clearing.

The persistence of the *pain in the back and epigastrium* carries a great deal of significance with reference to the primary disease. I believe that the "generalized pulmonary nodulation," even if it had the appearance of miliary tuberculosis, was more *probably silicosis*, in view of his occupation; I assume that pulmonary metastasis was also considered, and that this prevented his physician from performing a laparotomy at that time. All of his difficulties had not produced *jaundice* until two weeks before the history was taken. The dark urine is merely a manifestation of bile in the urine and favors *an obstructive process* affecting the biliary system. The headaches, vertigo, nervousness, insomnia, nosebleeds, and so forth, are all secondary manifestations of the patient's *bilirubinemia*, I believe. The part which is confusing is the "normally colored stools", and I believe that on closer questioning these would have been found to be light or clay colored. Another confusing feature is the slight, but tender swelling of the right hand and knee, but the *ankle edema* could be explained by liver damage and reduced total serum proteins, or thrombophlebitis.

The evident jaundice on physical examination is significant. The absence of lymph nodes and a palpable spleen lead us away from a diagnosis of lymphoblastoma. The tender area in the lower dorsal spine is confusing. Apparently these was no ascites, but the liver was enlarged and there was tenderness in the right upper quadrant.

The interpretation of the chest fluoroscopy does not indicate the nodularity seen in the chest film six months previously and, hence, suggests that the nodularity had cleared during this interval of time, or could not be easily visualized.

The bile in the urine, borderline urobilinogen, and four-plus direct Van den Bergh is suggestive of *obstructive jaundice*. The absence of any evidence of a mass in the pancreatic area by x-ray is not surprising and should not deter one from this impression. That the increasing severity of the symptoms, the clay colored stools, and abdominal pain, should lead to surgery is not surprising. *The findings at operation are understandable* with the exception of the actual location of the bowel obstruction, which is not too clearly stated.

I believe that *the significant findings leading to the diagnosis can be summarized as follows*: A six-month history in a forty-six-year-old male, consisting of almost persistent upper abdominal pain with radiation to the back, fever, weight loss, eventual jaundice of an obstructive nature, negative upper gastrointestinal x-ray, relatively normal blood count, enlarged gallbladder and pancreas at operation with a process obstructing the bowel, represents:

1. Carcinoma of the "biliary tree," with secondary pancreatitis.
2. Previous pulmonary infarct, left.
3. Pneumonoconiosis.
4. Thrombophlebitis.

There are very few tests which could have been done to make the diagnosis more certain. The patient should have had sputum examinations early in the disease, in the search for acid-fast bacilli. A tuberculin test would probably have been positive. The pleural fluid should have been cultured for acid, fast bacilli, and studied for malignant cells. Additional liver function studies *might* have assisted in making the differentiation.

Laparotomy, I believe, was imperative and had the patient permitted, should have been done at an earlier date. Even then, the course of his illness would not hav ebeen altered appreciably.

PHOENIX CLINICAL CLUB MASSACHUSETTS GENERAL HOSPITAL

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

First Admission: A forty-six year old housewife entered the hospital because of a persistent cough.

Approximately eight months before admission the patient developed a hacking cough and began to raise a small amount of sputum each morning that occasionally was blood tinged. There was slight dyspnea on exertion, but no cyanosis, palpitation, orthopnea, ankle edema, chest pain, fever, chills or night sweats, and she had gained 17 pounds during the six months preceding entry.

The family and past histories were noncontributory. There had been no contact with an open case of tuberculosis. A hysterectomy had been performed nine years before admission.

Physical examination revealed a well-developed obese, apprehensive woman who had a bothersome cough. The heart, lungs and abdomen were normal. A vaginal examination was essentially negative, and the fundus could not be felt.

The blood presssure was 130 systolic, 90 diastolic. The temperature was 98.6°F., the pulse 89, and the respirations 20.

Examination of the blood revealed a red-celi count of 4,490,000, with a hemoglobin of 13.6 gm., and a white-cell count of 11,000, with 65 per cent neutrophils, 21 per cent lymphocytes, 10 per cent monocytes, 2 per cent eosinophils and 1 per cent basophils. The urine was acid in reaction and had a specific gravity of 1.012, and the sediment contained a rare red and white cell and 3 epithelial cells per high-power field. The blood Hinton test was negative. The sedimentation rate was 2.5 and 9 mm. after thirty, forty-five and 60 minutes respectively. No acid-fast bacilli were seen in seven sputum examinations.

A chest roentgenogram disclosed a rounded, 4 cm., homogeneous area of increased density in the medial portion of the right infraclavicular area, there was no evidence of calcification or of cavity formation and the right lung field was otherwise clear. Overlying the anterior end of the fourth left rib were two irregular areas of increased density. The remainder of the left lung field was clear. The heart and mediastinum were not remarkable, and there was no evidence of respiratory shift. Both sides of the diaphragm were smooth in outline and showed normal motion. A review of films taken prior to entry showed much the same appearance except that the nodules in the left lung field were seen more clearly and appeared to be round rather than irregular. In the flat plate of the abdomen, the kidneys appeared normal in size, shape and position; no stones were seen. Intravenous dye was promptly excreted and outlined normal urinary passages.

Bronchoscopy on the second hospital day disclosed a normal trachea. The left bronchus was not entered, but on entering the right bronchus, the floor was displaced forward by extrinsic pressure. The orifice of the upper-lobe bronchus appeared angulated as though there were outside pressure on the superior angle where this bronchus met the main stem, thus displacing the opening downward and causing the superior lip to present sharply in the main-stem lumen. There was no visible growth, and nothing from which a biopsy could be taken. Sputum was obtained for acid-fast examination. The next day a pneumothorax was started in preparation for thoracoscopy. The patient was discharged unimproved on the ninth hospital day. X-ray films of the chest taken before the pneumothorax yielded no additional findings.

Second admission: (one year later). The patient was readmitted for exploratory thoracostomy. Her symptoms had continued unchanged. An X-ray film of the chest taken a month after discharge revealed that the right lower lung had re-expanded, but that there was still a considerable quantity of air surrounding the collapsed right upper lobe. The mass in the right upper lobe had not changed except that it contained a questionably small area of diminished density suggestive of beginning cavity formation. The nodules in the left mid-lung field were not clearly visible and were approximately 1 cm. in diameter.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

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Physical examination was unchanged. The temperature, pulse and respiration were normal.

An X-ray film of the chest taken on the day of admission revealed that the "mass" in the right upper lobe had increased slightly. There was an area of atelectasis in the anterior portion of the base of the right upper lobe. The two small areas in the left lung field had not changed.

An operation was performed on the seventh hospital day.

DR. HOWELL RANDOLPH:

This 46 year old housewife presented herself with a history of cough for eight months, with a small amount of sputum which was occasionally blood tinged.

Seven examinations of the sputum were negative and all other findings, both laboratory and clinical, were essentially negative except for the X-ray which showed a rounded mass four cm. in diameter in the medial portion of the right infraclavicular area.

Bronchoscopic examination was informative, although no intrabronchial lesion was seen. The right showed "on entering the bronchus that the floor was displaced forward by extrinsic pressure. The orifice of the upper lobe bronchus appeared angulated as though there was outside pressure on the superior angle where this bronchus met the main stem causing the superior lip to be displaced downward and presenting sharply in the main stem lumen. Sputum was obtained for acid fast examination." The results of this examination were not given, but from the management of the case subsequently, it seems sthat she was not diagnosed to have tuberculosis. Although pneumothorax was given, it was not maintained and was said to be given for diagnostic purposes.

No significant data was submitted for one year when she came in with a mass 7 x 7 x 6 cm. and more evidence of cavitation. There was also an area of atelectasis in the anterior portion of the base of the right upper lobe. The two small areas in the left lung had remained unchanged.

The various fungus infections may, I believe, be ruled out as most unlikely of the possibilities. This would not be true if the patient lived in an area where coccidioidomycosis was common, as this is exactly the picture we have seen in several of these infections.

Tuberculosis would be in the running but unlikely in view of the many studies that were made in the presence of a cavitary lesion.

Of the malignancies, as carcinoma, the fact that this large rounded mass had increased in size is suggestive, as is the ability to produce pressure upon mediastinal structures. Metastatic carcinoma is not likely if the nodules in the left lung are due to the same cause, as these failed to grow in a year. No primary focus is noted in the examination, but hysterectomy was performed nine years before. The absence of pain in the symptom list in the presence of growing lesion that has produced atelectasis is probably an oversight of the historian. Even tuberculosis will produce pain when atelectasis of a lobule occurs.

Of the benign conditions which might produce this situation, there is the hamartoma of the lung which is rare condition and may be ruled out because it is solid and does not communicate with open bronchus. The various cystic conditions do not seem very likely, even our old friend the echinococcus cyst.

The adenoma of the bronchus is almost always seen in the larger bronchi. They usually occur in women; they are of gradual development, may be very slow growing and may not produce symptoms until bronchial obstruction is produced. They are both benign and maligant, depending upon the pathologist, and a few of them have been proven to produce distant metastases. Moersch in 1945 stated that they were always in the larger bronchi, as did Foster-Carter in a 1941 review of such cases.

In 1947 Herbert Maier reported five cases occurring in branch bronchi not accessible to the bronchoscope. In four of the cases the tumor was located near the hilus area, and in one out in the periphery. Three were asymptomatic and one had bleeding, one pain. All were well three years or more after lobectomy. In none of these was cavitation noted.

There was a recent report of an alveolar cell carcinoma, which may well have been confused with adenoma, inasmuch as it was localized rounded tumor mass on the X-ray. Alveolar cell carcinoma has been recently reported as being a diffuse and slowly progressive condition. The appearance of the lung was compared to that of the sheep dying of Zjakeits epidemic disease and the patient had been in contact with sheep.

So now after surveying the field I am going

to settle for an *adenocarcinoma*, probably bronchogenic.

DR. LESLIE KOBER:

We have here the problem of determining the etiology of this "mass" in the right upper lobe approximately 7 x 7 x 6 cms. with cavity. The present emphasis on cancer of the lung and its early diagnosis would lead one to think immediately that this lesion might be due to bronchogenic carcinoma. Why wasn't an exploratory operation done on the first visit to the hospital one year previously? Even at that time the 8 months old cough with hemoptysis, absence of symptoms, or bacteriological evidence of tuberculosis would certainly have been sufficient to warrant exploratory thoracotomy. We must assume either that the patient refused the operation or that this case occurred before the present era of successful lung surgery. We are told that "a pneumothorax was started in preparation for thoracoscopy", but no information is given as to whether this procedure was completed. Maybe something was found which persuaded them to go no further. At least the patient was discharged shortly thereafter, only to reappear one year later. This immediately brings up the problem of whether bronchogenic carcinoma would have remained so benign for a period of approximately 18 months from the onset of cough.

In a Clinical Club discussion on October 2, 1950, reprinted in Arizona Medicine in March, 1951, Baldwin quotes: "According to Rubin three types of bronchogenic carcinoma are recognized: 1) An epidermoid carcinoma, 2) an adenocarcinoma, and 3) an anaplastic type, variously referred to as a small, spindle or round sell carcinoma."

Tenzel noted, as have several others, that epidermoid carcinoma is found chiefly in males, while adenocarcinoma is more frequent in females. Some pathologists have correlated the degree of malignancy of bronchogenic carcinoma with the cellularity of the tumor on the theory that the more cellular the structure, the more malignant and, possibly, the greater its radio sensitivity.

Epidermoid carcinoma is a relatively slow growing, late metastasizing tumor. It is not rare to find at autopsy instances of this type tumor limited to the affected lung and regional lymph nodes without any evidence of tumor elsewhere in the body. Acute cough may precede more acute symptoms by many months, and again, according to Rubin, may require years. However, 60% of the cases are of less than a year duration, and 30% less than six months. It seems entirely possible then that our case may well be a bronchogenic carcinoma showing cavity formation indicative of central necrosis and abscess formation, as far as duration of lesion is concerned.

The X-ray characteristics distinguishing carcinomatosis from other lung abscesses are:

1. greater thickening, often scalloping of the wall;
2. absence of noteworthy inflammatory changes around the cavity
3. signs of atelectasis and intrathoracic displacements caused by bronchial obstruction; and
4. a lack of change in comparative films.

In the final analysis, however, the diagnosis depends on careful weighing of all the findings. Apparently, seven sputum examinations, absence of fever, normal sedimentation rate, bronchoscopic examination, and X-ray findings had ruled out an active tuberculous lesion one year previously. But at that time it was noted that former round nodules in the left chest had become irregular areas of increased density. One year later these two lesions were unchanged. Are these two lesions identical with the process in the right upper lung? Could all three of these lesions have been inactive tuberculous lesions one year ago and now the right lung lesion become active, developed central necrosis and vacity? It seems that exploratory operation was needed to decide the issue.

Quoting from Frissell, also in Arizona Medicine for March, 1951, "I am inclined to go along with Rubin, Judd and other investigators who feel that in obscure lung lesions occurring in elderly individuals, a diagnosis of cancer of the lung is present until definitely proved otherwise." He goes on to quote from Rubin: "Several factors are concerned in apparent increase in incidence of this disease: 1). an aging population, 2). improved methods of diagnosis, particularly bronchoscopic surveys, biopsies, laboratory smear technique, etc. 3). Recent work on inhalation irritants including tobacco smoke. He goes on to quote, "The age incidence of carcinoma of the lung is 40 to 60. Males outrank females 3 to 1. The origin is usually in a major bronchus in 75% of cases. Periphery of

the lung is involved in only 25%. The upper lung field is involved in most instances. Complications include atelectasis, emphysema, and abscess formations in about 35% of the cases, etc. (for further details see the March, 1951 Arizona Medicine.)

Moore also discussed this Clinical Club case of October 2, 1950—presented by Dr. Williams, and ruled out the various causes of lung abscess including tuberculosis, until he arrived at the final conclusion—to quote from Arizona Medicine: "From recent literature the following brief, rather dogmatic statements with reference to cancer of the lung have been gleamed:

1. Bronchogenic carcinoma may simulate any disease, but none more successfully than tuberculosis.
2. The symptoms, physical signs and clinical course are not characteristic, and do not assist in the diagnosis of early bronchogenic carcinoma.
3. The X-ray appearance may resemble (a) benign tumors, (b) tuberculosis, (c) filled cysts, (d) chronic abscess, (e) localized bronchiectasis.
4. The only hope for a cure is by surgery in the stage before the above symptoms, physical findings and clinical course becomes suggestive of the condition.
5. Diagnosis of early bronchogenic carcinoma depends upon the presumptive X-ray findings.
6. It is wise to consider abnormal lung shadows in men over 40 years of age as caused by cancer until proven otherwise.
7. Exploratory thoracotomy when in doubt is the safest course. Palliative treatment, rest cures, and watchful waiting result in deceptive responses and greatly lower the chances of successful treatment.
8. Mass surveys, even by miniature X-rays, will increase the incidence of early detection and enhance the chances for successful treatment."

I quote from the above men, because I feel sure they have all given us the best information available at this time. Furthermore, they all made the diagnosis of Bronchiogenic carcinoma and all were correct—which proves what a wonderful, kind judge can do for ones' ego. Certainly Dr. Bank wouldn't want to let Dr. Williams get ahead of him in the esteem of his fellow practitioners, and no one likes to be called a lot of low down names. So I'm sure that our kind, gracious, scientifically minded judge today, not knowing that another had previously selected a similar case, chose this case for the specific purpose of once again calling to our attention the facts I have liberally quoted—about the why and wherefores of *cancer of the lung.*

My Diagnosis—Carcinoma of the lung. Probably epidermoid type because of its slow growth, but because adenocarcinoma is more frequently in females we cannot be too specific until the microscopic sections are viewed.

DIFFERENTIAL DIAGNOSIS

Dr. Helen Pittman: I assume that the operation done nine years ago was at an outside hospital; hence we do not know about the ovaries or why the operation was done.

The laboratory findings were essentially normal. It is not stated whether sputum taken at bronchoscopy was examined for tubercle bacilli or what the report was and I do not know why they went ahead and did a thoracoscopy.

This patient was a forty-six-year-old woman in good health. Before the time of operation, she had had, for one year and eight months, a cough productive of small amounts of sputum, which was only occasionally, not regularly or daily, blood tinged. She had had slight dyspnea on exertion, had gained weight and had had a hysterectomy nine years before, for what reason or what was removed we do not know. It is the kind of problem that we are faced with frequently and it is a difficult one because we do not have much to go on. With each case of chest tumor we have to go through rather stereotyped processes of reasoning. First of all, we think of the possible diagnoses and the appropriate diagnostic procedures. If that does not give the answer we must come to the decision whether or not exploration should be done.

The most probable diagnosis is malignant tumor, either primary or secondary. If primary, we think first of primary carcinoma of the bronchus. There was some blood, but it was only occasional, and we have learned to realize that the bleeding which leads us to suspect carcinoma of the bronchus is the daily ooze, not the occasional blood streak. This patient had pressure on a bronchus that was enough to give an irritating cough and I think we can say that this small amount of bleeding was probably secondary to the irritation that comes from pres-

sure and was not caused by bronchial ulceration. Other primary malignant tumors are extremely rare; these include sarcoma, lymphoma, dermoid cyst and teratoma.

May we see the x-ray films?

Dr. George W. Holmes: The first two films were taken before coming to this hospital. The lesion itself is distinctly lobulated. It varies somewhat in density, and within its substance are bright areas, which I think are bronchi but may be cavities. The heart and mediastinum are not displaced. There are no eroded ribs. The process is not adherent to the pleura because it was easily displaced after giving the pneumothorax. It is in the midchest—neither in front nor in back, nor in the upper or the lower portion. In the opposite lung field there is a small irregular shadow that is visible in most of the plates and does not change appreciably in size during this period of time.

Certainly the change in the size of the lesion itself was not rapid. One must also consider the possibility that a bronchus was plugged and that this shadow was due to atelectatic lung around a mass rather than to the actual mass. There was no fluid in the pleural space.

Dr. Pittman: This does not look to me like metastatic disease in the chest, but we have to think of that and it is quite obvious that they were thinking of it when the patient was worked up on the first admission. There were two possible sources: the unknown pelvic situation nine years before, and the commoner one, hypernephroma which they obviously were considering. This to me is not at all the picture of what one usually sees with metastases from a hypernephroma. But when the flat plate and the pyelograms were made they probably had that in mind, and certainly it was the proper thing to do.

The next thing to consider in a chest of this sort is chronic infection, and the two infections that we see most commonly are tuberculosis and lung abscess. The history does not suggest infection. The patient had gained weight, had no fever, and had no anemia or leukocytosis—the white-cell count of 11,000 with 65 per cent neutrophils is essentially normal. She also had a low normal sedimentation rate. Repeated sputum examinations were negative for tubercle bacilli. We do not know whether acid-fast stains were done on material obtained through the bronchoscope. This is one of the cases in which tests with a series of dilutions of tuberculin might have been extremely important. In the presence of this lesion a negative test with a 1:1000 dilution of tuberculin would have enabled one to have ruled out tuberculosis.

Going back to the primary bronchial tumors, I must say that the sputum does not suggest such a tumor or ulceration into the bronchus, and the bronchoscopic examination was negative for a lesion of the bronchial wall. It did, however, show extrinsic pressure, so I think we can fairly safely reject from our minds a primary carcinoma of the bronchus.

Then one must consider benign tumors. This was an essentially asymptomatic mass, which did not affect the patient's health, and on bronchoscopic examination only revealed evidence of extrinsic pressure. Intrathoracic goiter and dermoid cyst are possibilities, but I feel perfectly sure that both can be discarded at this time.

On the patient's first admission she was put through the routine diagnostic procedures of x-ray study, blood work, bronchoscopy and pneumothorax. The last was done to learn whether it caused the lung to fall away from the pleura and hence made the lesion more clearly visible, and at the same time to show up the parietal pleural surface to see if it was rough or showed nodules. At the time of discharge on the first admission the more serious diseases, for which one should interfere, had been ruled out, and given a patient who was not sick it was reasonable to keep her under observation—to let her go home and to see how things went along.

That is apparently what was done. The x-ray taken one month after discharge shows that for at least a month she kept in contact; then she came back the year after the first admission still, we gather, in good health, with no significant change in the symptoms and with no fever. There are no reports of blood, urine and sputum examinations at that time, but I assume that they were still negative. Then comes the situation that must be frequently faced with these tumors. All the routine and reasonable diagnostic procedures have been carried out; the patient is in good health, but there is an increasing lesion. Is one justified in allowing it to ride any longer or must one explore and find out what is at the base of it? I think that is the really important point in this case. One can guess all day long about the diagnosis. All leads have been quite valueless, and while there is still time to do something, one should resort

to exploration for the purpose of diagnosis. I think that was probably the situation in this case.

One should have a preoperative diagnosis for a working basis. There are few clues to throw weight on any of the things that I have discused. There is little evidence for infection, and a good deal of evidence against it. I am going to make a preoperative diagnosis of tuberculosis; possible the mass was a tuberculoma or a large tubercle.

Dr. Tracy B. Mallory: The preoperative diagnosis was tuberculoma, Dr. Pittman.

Dr. Richard Sweet: This was one of the most amazing cases we have had in a long time and I welcome the opportunity to find out what the pathologists found, because I have not heard. Because of the exigencies of the war, the patient had a complete change of doctors during a period of one and a half years. The surgeon who first saw her went to war, then the medical man went; finally the one who did the bronchoscopy entered the armed services. It was my impression that we did another bronchoscopy at the time of the second admission, but perhaps not. At any rate, the case was presented to me by her new physician for a decision whether we should do, as Dr. Pittman has said, an exploratory operation.

I was impressed by a number of clinical facts regarding this patient. First of all, after a year and a half she was in remarkably good condition and had no fever. This seemed to indicate that she did not have a wasting disease. From that standpoint, as you recall, Doctor Holmes mentioned a lesion in the left lung field, and it is my impression that the surgeon who first reviewed her case believed that because of this lesion and the probability that she had tuberculosis it would be unwise to operate for fear of a flare-up on the left side. Since that time more lobectomies have been done for tuberculosis and perhaps we had more courage at the second admission than we had at the first. I was never convinced of the diagnoses of tuberculosis, although Doctor Mallory has said that the preoperative diagnosis was tuberculosis. My diagnosis was tuberculosis or cancer. I did not see how one could tell which it was. The reason I leaned a little toward cancer was that she had a persistently bloody sputum. It is unfortunate that Doctor Pittman was not given that information in the record. The patient was worried about herself because of this blood-tinged sputum almost every day. That to me usually means carcinoma. On the other hand the history was a long one. Patients with carcinoma of the lung, even of only a few months' duration, are usually in poor physical condition, but this woman was in good shape. So although we really had no accurate information concerning the diagnosis, I leaned toward carcinoma, as did the medical man who had her in charge, as well as some of the others who saw her, including one physician whose knowledge of tuberculosis is extensive.

At operation the condition was still puzzling. The lesion involved the upper lobe. It was not adherent. As soon as air was introduced into the chest it fell away from the chest wall. It had a round contour like that of a swollen liver. The surface was depressed, and there was a milky film over its surface. As I felt of it, it had a rubbery consistency; it was not hard and firm like a carcinoma. I could not tell what it was. There were no enlarged lymph nodes at the hilum, which is consistent with the diagnosis of tuberculosis. In the majority of carcinoma cases, on the other hand, the nodes are involved. Removal of the lobe was easy. Her convalescence was as smooth and uneventful as any I have ever seen, and that to me is circumstantial evidence in favor of the diagnosis of carcinoma.

Dr. Mallory: Do you care to say any more, Doctor Pittman?

Dr. Pittman: I should feel, as Doctor Sweet did, that if the patient was having daily bleeding one would have to consider carcinoma much more seriously than I considered it, although it certainly is unusual to have a bronchoscopy merely showing evidence of extrinsic pressure.

Dr. Sweet: I do not understand the bronchoscopic report. They say there was evidence of pressure on the trachea or bronchi, but at the time of operation there was none whatever.

Dr. Mallory: Doctor Robbins, have you any comments?

Dr. Lawrence Robbins: No; my diagnosis was tuberculoma from the way the lesion had progressed.

Dr. Holmes: The x-ray evidence is in favor of tuberculoma.

CLINICAL DIAGNOSIS

Carcinoma of lung?
Tuberculoma?

DR. PITTMAN'S DIAGNOSIS

Tuberculoma

ANATOMICAL DIAGNOSIS

Metastatic papillary cystadenocarcinoma of ovary.

PATHOLOGICAL DISCUSSION

Dr. Mallory: Doctor Castelman, who schedules these conferences, sometimes plays a trick on me. When we have a particularly difficult specimen over which I delay about committing myself, he occasionally puts it on for clinicopathological conference without warning and I have to make up my mind. I think that is the reason this case was scheduled.

I am not a bit sure what the diagnosis is. About four fifths of the right upper lobe was replaced by a rather firm, but not extremely hard, tumor. Grossly it looked like tumor and certainly was not tuberculosis, but it was peculiar in several respects. There were four small cystic cavities within the solid tumor that did not seem to be bronchi, and each of them contained mucoid material. They seemed to be part of the tumor.

The microscopic sections present a very unusual appearance. The architecture of the lung is perfectly preserved. The bronchi are lined with perfectly normal ciliated epithelium, and the great majority of the alveoli are lined with extremely high columnar epithelium that is obviously secreting mucus. This epithelium projects into the lumens of the alveoli in papillary masses, and there is no destruction of the alveolar walls that can be clearly outlined by elastic-tissue stains. The appearance of the cells, the papillary character and the mucoid secretion are all similar to the findings in papillary adenocarcinoma of the ovary. This woman had had a hysterectomy nine years previously and we have not yet succeeded in checking up on the findings of that operation. It is conceivable that this represents metastasis from an ovarian tumor. On the other hand this would be an extraordinary course for a malignant ovarian cyst. They almost always extend first through the wall of the cyst to the peritoneum, then produce widespread peritoneal implantations followed by ascites, and distant metastases are quite uncommon. Metastasis from a papillary pseudomucinous ovarian cyst must remain a possibility. It is still a question whether the masses in the other lungs were likewise metastatic, and it is difficult to explain why one should grow and two others remain the same size.

The other possibility is that this was a primary tumor of the lung, and in favor of that I have seen just one other case which to my recollection is exactly similar in growth and histologic appearance. That case occurred in a man so that ovarian cyst was out of the question; moreover we had an autopsy and found no tumor outside the lung. However, the thyroid, a frequent source of papillary adenocarcinoma, was not examined. If the tumor was primary, it seems to be essentially a carcinoma of the alveoli with no demonstrable connection with any bronchus, and there is so little evidence that alveolar epithelium actually exists that one hesitates to make such a diagnosis. I have to leave the question open.

Dr. Sweet: From the clinical picture, I should accept the diagnosis of primary tumor of the lung much more readily than anything else. I have never seen any other case exactly like this one.

Dr. Mallory: It is very unusual for a tumor to invade an entire lobe of the lung, growing simply along the surfaces of the alveoli and producing no destruction of the lung tissue, but I have occassionally seen similar pictures before.

Dr. Holmes: What do you think of the lesions in the other lung? Were they just a red herring?

Dr. Sweet: They have not changed over a period of observation. Everyone has been looking at them and expecting them to clear up. Those who vote for tuberculosis use these lesions as evidence for tuberculosis. My opinion was purely clinical and was not based on the x-ray findings.

ADDENDUM

Between presentation of this case at conference and publication it was discovered that a papillary pseudomucinous cyst of the ovary was removed at the time of the hysterectomy. Doctor Arthur T. Hertig, of the Free Hospital for Women, Brookline, kindly loaned me a microscopic section for comparison. The character of the two tumors is identical, so I believe the major pulmonary lesion was unquestionably metastatic, and my guess is that the smaller lesions in the opposite lung must be also.—Tracy B. Mallory.

THE SECRETARY'S MESSAGE

CHIROPRACTOR LITIGATION – MICHIGAN

Circuit Judge Thomas J. Landers of Gogebic County recently handed down an opinion in litigation between a chiropractor and the Trustees of Grandview Hospital, Ironwood, Michigan.

Criminal charges were pressed by the chiropractor who claimed that the Trustees discriminated against him and wilfully neglected to perform duties while holding positions of public trust when they refused him the use of Grandview Hospital for his chiropractic practice.

Here are the salient points of Judge Landers' decision:

1. . . . "a public officer cannot be subjected to criminal prosecution for failure to perform duties which require the exercise of discretion on his part, where there is no element of an evil or corrupt design in his conduct."
2. The chiropractor "claims to be a practitioner of a school of medicine, . . . but we are referred to no statute or case where the legislature or a Michigan court has ever defined the meaning of the term 'school of medicine'."
3. . . . "To uphold the informations and force the defendants to trial in these cases would be legislating that the term "school of medicine" included a school where chiropractic was taught."
4. Under the terms of Act 350, Public Acts of 1913, the Board of Trustees were given the authority to determine rules for the hospital. The rules state that no person shall practice medicine in the hospital unless he has a license from the state of Michigan to practice medicine.
5. Charges against the trustees were dismissed.

VOLUNTARY SICKNESS AND HEALTH PROTECTION

The Health Insurance Council, comprising nine trade associations in the life and casualty fields, in its 1950 report recently released, should set socialized medicine supporters back on their heels. It is indicated that at least half of the nation's population at the end of last year was covered by one type or other of voluntary protection against the economic hazards of sickness and accident. All forms of voluntary health protection scored tremendous gains in 1950 to set new records.

Hospital expense protection, which covers the largest number of people, was extended to 76,961,000 persons at the close of 1950, 17% greater than the figure of 66,044,000 just a year before. Growing public appreciation of the advantages of voluntary health protection can be seen in the fact that the number of people protected against hospital costs has more than doubled since the end of World War II.

Great strides were also made by surgical expense and medical expense coverage in 1950. Surgical expense protection was provided 54,477,000 persons at the end of last year, compared with 41,143,000 a year earlier, an increase of 32%. A year-to-year gain of 28% was recorded by medical expense protection, which covered 21,589,000 persons in 1950, and 16,862,000 in 1949. Both surgical and medical expense coverages also have shown larger postwar gains, with the 1950 number of persons in each case being more than quadruple the 1945 totals.

The AMA Council on Medical Service has a supply of the complete insurance report and will mail to any physician requesting it.

Editorial

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

LOST — ONE MILLION

It is estimated that there are one million undiagnosed diabetics in the United States. This is approximately one out of every one hundred and fifty individuals. It is primarily the responsibility of the medical profession to find these persons before they are crippled and their lives destroyed by this chronic, destructive disease.

The American Diabetes Association has sponsored and helped organize a continuous national diabetic drive for the past three years. This organization, which is composed primarily of physicians, warrants the support of the entire medical profession in its attempt to detect the unknown diabetics. This is the only broad health education and case finding program which has been developed exclusively by the medical profession.

DIABETES WEEK—NOVEMBER 11 to 17, 1951. This week has been set aside as a time to put forth concentrated special effort to find the unknown cases of diabetes. This "drive" and the organization itself are unique in that they are not fund raising campaigns. The American Diabetes Association has not, and does not intend to, sponsor any general solicitation of funds. The materials for conducting the campaign will be furnished without cost to authorized organizations upon request. This organization will furnish printed instructions on how to Organize a Successful Diabetic Detection Drive, Posters, Radio and Newspaper script, as well as the chemicals necessary to carry out large screening programs.

The execution of this drive is vested in the State and County Medical Societies, and all those who participate will render a needed public service.

It is not necessary that one be a part of an organized group to make this detection drive a success. Each individual physician, with little effort, can on his own part carry out a detection program which in the end would be of great value. Every physician, irrespective of the type of practice in which he is engaged, should direct all his patients to have a urine test for sugar at least once a year, and he should instruct each patient to have tests made upon their immediate families, and to urge their friends to do the same.

The American Medical Association has endorsed "self-testing" sets. These self testing sets may be purchased by any individual from a druggist for only a few cents, if they do not choose to have the urine tested by their physician or a qualified laboratory. It is advised that the individual be instructed to test the urine one to

three hours (preferably ninety minutes) after a meal which was rich in carbohydrates.

All physicians should remember this Diabetic Detection Drive, and all are urged to discharge a public obligation by detecting these unknown diabetics, so that the disease may be controlled, complications prevented, and lives happily prolonged.

For those who may desire detailed information regarding this drive you are directed to John A. Read, M.D., Chairman of the Committee on Diabetes Detection; American Diabetes Association, Inc., 11 West 42nd Street, New York City, 18, N. Y.

L.B.S.

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PAMPHLETS

Pamphlets available for distribution on request to Central Office:

Your Doctor—Association publication.

Socialized Medicine Is No Bargain—by William L. Hutcheson, A. F. of L.

Government Medicine — Danger Ahead!—by Dave Beck, A. F. of L.

A Doctor For You—AMA.

What About This Doctor Shortage?—Reader's Digest.

A FREE BATH

The British government, under its health program, already supplying false teeth, eye glasses and wigs through taxation, has decided to deliver motorized baths to the front doors of residents in a southern England town as an experiment in its program of increasing the wealth of the common man. A government truck with hot water, tubing, pump and a bath tub will call and provide the facilities.

——o——

AMA DIRECTORY

Frank V. Cargill, Editor, reports 13,000 new names, 70,000 changes of address, and 6,000 deletions because of death, since publication of the last edition of the AMA Directory.

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GOVERNOR'S CONFERENCE

November 9 and 10—1951 Governor's Conference on Children and Youth, Phoenix College, Phoenix. Arizona. Representative delegates from religious, educational, professional, lay and youth groups, in a workshop-panel-plenary session type of conference, will meet in a state-level effort to "follow through" on the recent National Midcentury White House Conference for Children and Youth.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER

We are proud to have received a contribution from far off New York. An alert public relations film (Noyes and Sproul, Inc.) sent some reprints which comment on the composition of FROZEN CONCENTRATED ORANGE JUICE. . . . The stuff is nearly as valuable as fresh O. J., they say, and it loses almost none of its ascorbic acid content. It also contains considerable inositol, tho no great amount of any other vitamin. . . . Thus, the New Yorkers have made a paragraph for us, acceptable to all readers EXCEPT those from Arizona and California (the juice came from Florida), and Harvard men (the chemistry was determined at Yale).

Twenty cases with scrotal or rectal PELLAGRA FROM PENICILLIN therapy were all cleared dramatically by 100 mgm. of nicotine acid, T.I.D., orally.

A NON-SPECIFIC VITAMIN THERAPY effect has been described in the American Journal of Clinical Endocrinology. . . . Premenstrual tension has been markedly relieved by 100,000 units of Vitamin A twice a day during the two weeks before menses. The nervous symptoms, abdominal pain, and edema were variably relieved, but a high per-cent of those with mastopathies (adenosis, cysts, etc.) obtained relief.

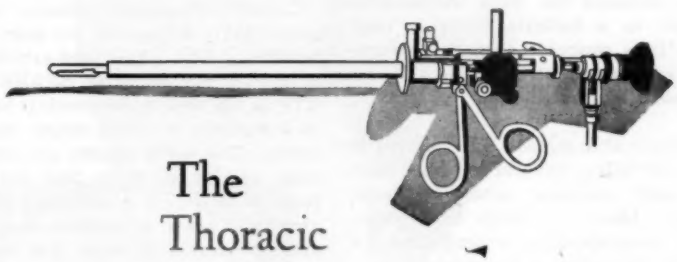
The addition of a 10-bed TUBERCULOSIS UNIT to the Pinal General Hospital is a step in the right direction. It calls attention to the relatively small number of beds for the disease in Arizona. . . . The recent public health sentiment for isolation of the tuberculous fits in which the practice elsewhere; quarantine or compulsory hospitalization has long been quietly accepted in California, Wisconsin, etc. . . . The fallacy of hoping to hospitalize Arizona's tuberculous lies in the lack of places to put them. Which 5 or 10 per cent would you hospitalize?

ACTH seems to work well in BRONCHIAL

AUREOMYCIN

Hydrochloride Crystalline

Effective against many bacterial and rickettsial infections, as well as certain protozoal and large viral diseases.



The Thoracic Surgeon . . .

will find aureomycin of benefit in the complications of pneumonias refractory to other forms of therapy, particularly in those very serious forms caused by the staphylococcus or by *Klebsiella pneumoniae*. In the pneumonic involvements of psittacosis, tularemia, rickettsial disease or mucoviscidosis, aureomycin is highly effective. It is also very useful in the ambulatory or surgical management of bronchiectasis. Multiple lung abscesses have been known to heal with aureomycin treatment alone. In operative thoracic procedures, aureomycin is invaluable.

Packages

Capsules: Bottles of 25 and 100, 50 mg. each capsule. Bottles of 16 and 100, 250 mg. each capsule.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

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ASTHMA. The numbers of patients in the series reported so far are not large, but one or more courses of treatment wil give partial to complete relief in almost all bona fide cases. . . . The effect occurs in 2 to 20 days, using 250 to 1,000 mg. per course. Success may be estimated by the suppression of eosinophilia. The usual methods of therapy can usually be discontinued in 1 or 2 days. . . . The mechanism of ACTH effect is speculative, but asthma may be due to poor adaptation to stress, with a resultant failure of the pituitary to stimulate the adrenal cortex, and a replacement of the deficiency by the ACTH.

Dr. Edith Lord of Phoenix recently gave a paper on a topic which included the word 'Rorschach'. The announcement in a bulletin made it read 'Ronschaeh'. . . . It is probable that the printer knows the same amount about ink-blots as most doctors, or even most editors.

The new and fashionable disease this summer is 'CAT-SCRATCH FEVER'. Several reports have appeared from such separate areas as Paris, France, and Boston, Mass. . . . Greer and Keefer describe it as a lymphadenitis, accompanied by malaise and fever, following a cat-scratch. . . . The organism is obscure, but probably a virus. . . . The disease is self-limited. No specific therapy is known, tho aureomycin shortens the illness. . . . Anti-cat people might say that we could dispense with cats as a preventive measure.

The most widely and recently quoted COMMENT BY A PHYSICIAN is that of Dr. Richard Kern of Temple Medical School. He spoke on geriatrics at the San Francisco session of the A.A. of G.P. . . . "No one will admit that he is old until the fact is perfectly obvious to everyone else. Therefore, the doctor who limits his practice to geriatrics would probably starve to death". . . . Graduates of Pennsylvania, circa 1930, need not worry yet about their age, but they may remember Dr. Kern as an instructor who always gestured with his long middle-fingers.

Parsons and Wellman of Mayo's report that GASTRO-INTESTINAL IRRITATION from aureomycin or terramycin may be eliminated by,— 1. Aluminum hydroxide gels (except that they decrease absorption of the antibiotics); 2. Milk (unless it is not allowed in the diet, or not tolerated); 3. Sodium bicarbonate (or certain other antacids).

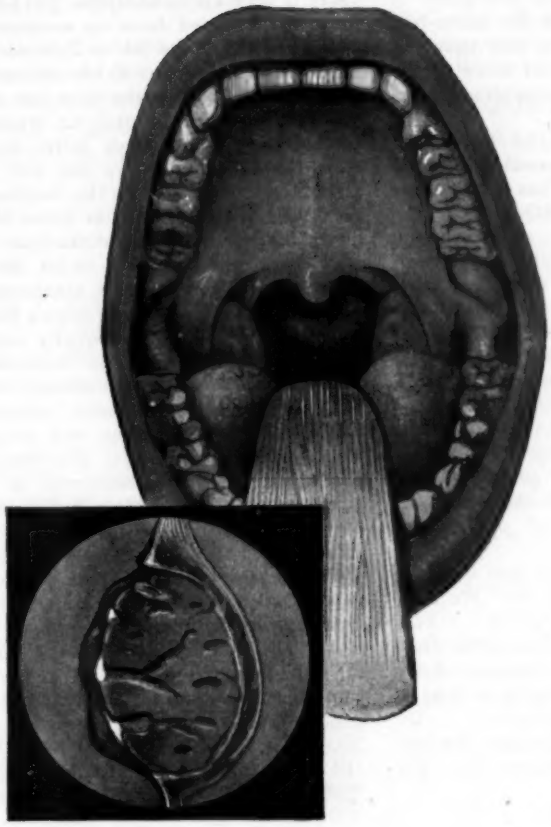
While most of the CANCER RESEARCH people plug along on their various leads, one group is full cry on the True Trail. They are sure that virus-like organisms are to be found in cancer cells, the blood of cancer patients, etc. . . . One of the most certain of these is Dr. John Gregory of Pasadena. He builds his castle of theory on a foundation of animal evidence. There is no question to him that cancer is an infectious disease caused by a virus. . . . It makes one feel stodgy and reluctant to wait for further data, but why don't the rest of the experts get in line?

German experience has shown that children with military (hematogenous) tuberculosis must be treated by STREPTOMYCIN INTRASPINALLY to PREVENT meningitis. The drug passes the barrier from blood to spinal fluid poorly, even when the meninges are inflamed, and intramuscular administration is not a sufficient prophylactic.

Collier's Magazine splashes the story of Adenosine-5-Tri Phosphate all over its issue of September 1, 1951. The lead-article is called "HAS SCIENCE FOUND THE SPARK OF LIFE?". . . . ATP is not well understood; it has only been used in a number of small series; and the material is costly. The early results are favorable in such a wide variety of cases that SOMETHING might come of it. . . . It is supposed to be necessary for growth of seeds, absorption of nutrition by plants, and conversion of meat into amino acids. It is responsible for muscular contraction, for transmission of intelligence, and for such odd things as the light of fireflies and the current of electric eels. . . . The Collier's description includes a heavy charge of physiology for the general public. It describes the work being done on the substance, the symposia being held on its composition and effects—including the attention of three former Nobel Prize winners. . . . While looking for its best usage, several groups have reported it to be of value in pruritis of Hodgkin's, varicose veins, and diabetes; in bursitis; in multiple sclerosis; in senile loss of memory; and possibly in certain heart diseases. . . . Awfully early, but Collier's is there first—and can't be expelled from a medical society if it doesn't work.

Many physicians are becoming more and more cautious in their use of PENICILLIN. The hazards are definite, and Gilman believes that they are increasing. . . . The simple urticaria of year is now being replaced by a serious serum sickness, suggesting that the allergic response may now be ANAPHYLACTOID in character.

The serofloccculation TEST FOR MALIGNANT DISEASE of the chest, reported by F. X. Byron of LOS ANGELES, should be observed for a number of reasons. First, it had a fair incidence of specificity. Second, a test as this is needed. Third, Dr. Byron came to Tucson in 1946, considered the possibility of remaining there in the practice of chest surgery, but returned to Ann Arbor where he continued to run the department while Drs. John Alexander and Cameron Haight were unwell.



in acute tonsillitis: "Excellent" responses, typical of the results obtained in a wide range of respiratory infections, Terramycin-treated, were noted in acute tonsillitis cases "within 48 to 72 hours, with rapid subsidence of temperature and physical findings."

Sayer, R. J.; Michel, J.; Moll, F. C., and Kirby, W. M. M.: Am. J. M. Sc. 221:256 (March) 1951

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WHEN WRITING ADVERTISERS PLEASE MENTION THIS JOURNAL

BACITRACIN has been given parenterally with success at Louisiana State. It is combined with 2 per cent novocaine. About two-thirds of the cases did very well. Some of the cases had pain at the hypo site, and some had transient albuminuria. Fifteen to 20 per cent more of the bacterial strains were sensitive to bacitracin than to penicillin.

TIME Magazine (It's a good medical journal too.) reports that a Navy doctor has a neat rule of thumb for judging the PROGNOSIS OF ATOMIC-RADIATION VICTIMS,—all who do not vomit should live; half of those who stop vomitting within a few hours will live; and all of those who continue to vomit will die. . . . TIME also mentions that three Cleveland Clinic workers have found that brain and nerve tissue can produce a hormone-like substance which enters the blood and RAISES THE BLOOD PRESSURE. They have an antidote called hydrazino-phthalazine. . . . A similar discovery a dozen years ago by Dr. Page of Cleveland excited the medical profession; the led-down occurred when the anti-vasotonic substance could not be produced.

GIANTS GONE.—Every now and then the mortality rate of great men seems to rise. We have lost two justly famous ones this spring. . . . Dr. George Dock faded away in Pasadena after more than ninety interesting years. A colleague of the original Osler, he was a full professor in four of the greatest American medical schools. . . . Dr. Ludwig Hektoen was a great Chicago teacher, pathologist, and editor—best known for 'The Journal of Infectious Diseases'.

CHANGING FACES AND PLACES.—We usually accept changes in teaching positions, especially if they are promotions. Dr. Gordon Meiklejohn was elevated from an assistant professor at California to the top job at Colorado; he deserved it. Dr. Nathan Womack has changed from head of surgery at Iowa to the same job at North Carolina (He was once a prof. at Washington in St. Louis). Dr. Carroll Birch shifts from Illinois to New Delhi, India, where she will be dean and trainer of deans. . . . In the surprise class is the move of Dr. Perrin Long of Johns Hopkins to the new College of Medicine at the State University of New York, and the move of Dr. Burgess Gordon from clinical professor of medicine at Jefferson to the presidency of the Women's Medical College of Pennsylvania. . . . An equally surprising move, and of special interest to Arizonans (since he came from Tucson), is the change which Dr. John R. Mote made from Armour Laboratories, where he was medical director and assistant general manager, to the medical directorship of Smith, Kline and French Laboratories in Philadelphia. Armour, ACTH, and Mote had seemed to be inseparable.

The author of this column listed some of the reportorial aims when the column first appeared. One or two of them have been mentioned since then. . . . At the risk of boring the readers, we say that accuracy as well as speed is desirable—but no person can be omniscient in this age of prolific publication. . . . Therefore, A COLUMN MUST BE A FORUM, WITH READERS ADDING OR CORRECTING IF THEIR SPECIAL KNOWLEDGE MAKES IT POSSIBLE. Please do.

• DOCTOR •

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PLAN NATIONAL MEDICAL CIVIL DEFENSE CONFERENCE

CHICAGO—The three most important persons in medical civil defense planning from each state will be brought together here November 9 and 10 in a national medical civil defense conference, the first of its kind.

The conference in the Palmer House will be held under the joint sponsorship of the American Medical Association, the American Hospital Association and the Association of State and Territorial Health Officers. State public health officers, chief hospital administrators and representatives of the state medical societies will meet with government civil defense authorities.

Among the topics to be discussed will be biological warfare, national blood program, survival during and after atomic attack, casualty medical records and community organization of life-saving teams of doctors, nurses, hospitals and others to meet disaster.

The speakers will include Millard F. Caldwell Jr., federal civil defense administrator and former governor of Florida; Col. William L. Wilson, assistant civil defense administrator in charge of health and welfare; Dr. Norvin C. Kiefer, director of special weapons defense for the Federal Civil Defense Administration, and Dr. Herman Hilleboe of Albany, New York state health officer who planned and set up New York's medical civil defense program.

Dr. James C. Sargent of Milwaukee, chairman of the A.M.A. Council on National Emergency Medical Service, will preside.

Note: Dr. Joseph M. Greer of Phoenix will represent the Association at this meeting.

——o——

THE ANATOMY BOARD

On Wednesday, October 10, 1951, Governor Howard Pyle appointed the following members to serve as a State Board of Anatomy, in accordance with Chapter 144 of the laws of Arizona, all members of which shall be appointed by and serve at the pleasure of the Governor without compensation, except the Chairman.

James P. Ward, M.D., Phoenix, Chairman (Director of the State Department of Public Health)

William N. Henry, M.D., Wickenburg

William J. Johnson, D.D.S, Phoenix

Leroy Picard, Professor of Health and Physical Education, University of Arizona, Tucson

Dr George H. Maughan, Associate Professor of Zoology, Arizona State College, Tempe

——o——

NEW EQUIPMENT DEMONSTRATED TO AMERICAN COLLEGE OF PHYSICIANS

Dr. Roy Hewitt, prominent Tucson physician, gave a paper on the application of Intermittent Positive Pressure to respiratory cripples. According to Dr. Hewitt the administration of Oxygen is given patients without regard for the expulsion of Carbon Dioxide resulting in failure of the Therapy.

He recommended Intermittent Positive Pressure breathing in cases of Bronchial Asthma, Pulmonary Edema, and Intermittent Positive Pressure with aerosol for chronic bronchitis, pneumonitis, bronchiectasis, lung abscesses and silicosis.

Mr. Lauck of the Dye Medical & Oxygen Supply Co. was on hand to explain the technical phases of the MSA Pneophore mentioned as very effective and economical for this treatment in Dr. Hewitt's talk.

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Remember, there is no registration fee. All members of the A.M.A. are admitted free of charge. Use the hotel reservation and advance registration forms on these pages. Do it now and mark your calendar for Los Angeles, December 4 to 7, 1951.

NOTE: All reservations are to be cleared through the Local Subcommittee on Hotels. Contacting individual hotels will be useless as your application will in any case be referred to the Subcommittee. Use the form at the bottom of the opposite page, addressing the Chairman, American Medical Association Subcommittee on Hotels, 1151 South Broadway, Los Angeles 15, California.

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December 4 to 7, 1951

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2.	Ambassador	7.00	10.00-18.00	10.00-18.00	3.00 pp extra
3.	Aready	.....	6.50	7.50	1.50 pp extra
4.	Biltmore, House of Delegates, Limited number of rooms available	6.50-11.50	9.00-14.00	10.00-14.00	2.50 pp extra
5.	Chancellor	.....	6.00- 7.00	6.50- 7.50	1.50 pp extra
6.	Chapman Park	6.00 up	10.00 up	10.00 up	2.00 pp extra
7.	Clark	4.00- 5.00	5.00- 6.00	6.00- 7.00	7.50- 9.00
8.	Commodore	3.00- 5.00	4.00- 6.00	5.00- 8.00	7.00
9.	Gaylord	6.00 up	8.00 up	8.00 up	10.00 up
10.	Hayward	4.00- 6.00	5.00- 7.00	6.00- 8.00	1.50 pp extra
11.	Hollywood Drake	4.50- 6.00	4.00- 7.00	6.00- 8.00	6.50- 7.50
12.	Hollywood Knickerbocker	5.00 up	7.00 up	7.00 up	2.00 pp extra
13.	Hollywood Plaza	4.50- 6.00	5.50- 7.00	6.00- 8.00	2.00 pp extra
14.	Hollywood Roosevelt	6.00-10.00	8.00-14.00	8.00-14.00	2.00 pp extra
15.	Lankershim	3.50- 4.50	5.00- 6.00	6.00- 7.50	.....
16.	Mayan	3.00- 4.50	4.00- 6.50	5.00- 7.50	2.00 pp extra
17.	Mayfair	4.50 up	6.50 up	7.50 up	9.00
18.	Mayflower	4.50- 7.00	4.50- 7.00	5.50- 7.00	7.50
19.	Park Wilshire	5.00- 6.00	7.00- 8.00	7.00- 8.00	2.00 pp extra
20.	Ritz-Flower	4.00- 5.00	4.00- 5.00	5.00- 6.00	1.00 pp extra
21.	San Carlos	3.50- 5.00	3.50- 5.00	5.00- 6.00	6.50
22.	Savoy	3.50- 4.50	4.50- 6.00	5.00- 6.50	1.00 pp extra
23.	Town House	7.00	10.00 up	10.00 up	3.00 pp extra

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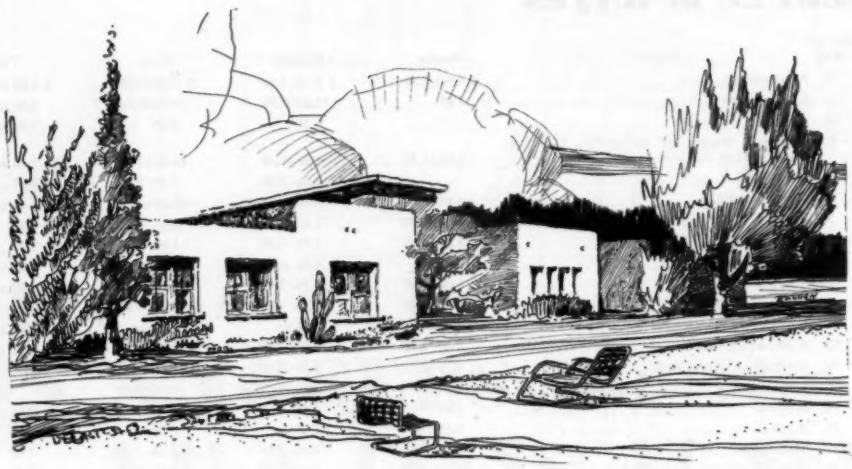

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VETERANS' LEGISLATION

In view of the staggering volume of veterans' legislation enacted since 1914 it might be of interest to review the history of this legislation because the laws then enacted have set public policy. The present Veterans' Administration stems from the old Bureau of War Risk Insurance established by Congress in 1914. The purpose of this law was to provide temporary insurance for the export shipping trade of the U. S. The insurance covered vessels, their cargoes and their passage money. In 1917 this law was amended to provide insurance for members of the military or naval forces, provide allotments and family allowances, and compensate for death or disability resulting from personal injury suffered or disease contracted in the line of duty. In addition the compensation for disability was augmented by medical care and hospitalization. The appropriation in 1917 was less than $200 million—contrast this with the 1951 when the appropriation was nearly $6 billion![1] From these small beginnings the Veterans' Administration has emerged. Seven years after the Bureau of War Risk Insurance had been established, it was abolished by Congress and the Veterans' Bureau was established as an independent bureau reporting directly to the President. In 1924 the World War Veterans Act opened all hospital facilities under the control and jurisdiction of the Veterans' Bureau to honorably discharge veterans of the Spanish American War, the Phillipine Insurrection, the Boxer Rebellion, and World War 1 provided such veterans would sign a pauper's oath. Such a statement, under oath, must be accepted by the Veterans' Administration "as sufficient evidence of inability to pay." Shortly thereafter the caseload showed 80 per cent of cases to be nonservice-connected. For several years after the enactment of the 1924 law Congress showed its generosity by granting more and larger pensions. They even went back into the Indian Wars (1817). Each year Congress also authorized appropriations for construction of more hospitals and other facilities for veterans.

In 1933, in the Roosevelt Economy Act, we find a rider creating a joint congressional committee to investigate the operation of the laws and regulations relating to the relief of veterans of all wars. The President was authorized to issue regulations regarding the amount of pensions to be paid to veterans, fix the rates of payment for disabilities and death, and to knock out all nonservice connected medical care. However, Congress did not stick by its economy. One year later the status of veterans was restored to what it had been. World War II saw a tremendous expansion of veterans' benefits. The GI law undertook a vast program of readjustment for all GIs, whether disabled or not. Job training, unemployment benefits, and a wide range of loans were made available. A great hospital construction program was instituted. At present H. R. 313 calling for the construction of 16,000 additional beds has passed the House and is before the Senate. This number of beds are not needed for service-connected cases as 88 per cent[2] of general medical and surgical cases are nonservice connected. H.R. 3193 provides increased pensions for disabled veterans requiring attendance of other persons including nurses. The bill applies to disabled veterans whose disability is not service-connected. This bill passed Congress but President Truman vetoed the measure and stated his opposition to any new legislation giving assistance for nonservice disabilities. The house overrode his veto by a 318 to 45 vote!

There are nearly 19 million veterans—approximately one-eighth of the population. We are likely to be kept in a state of war or near war for a long time and before long most of the youth of the country will have veteran status. Are the tax payers willing to pay this bill?

1. The Budget of the United States Government—V. A. 1951 appropriation $5,816,674,800.
2. Administrator of Veterans' Affairs, Annual report, 1950.

Sarah S. Hirsch
(Mrs. Louis Hirsch)
Legislative Chairman

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WHAT "TODAY'S HEALTH" MEANS TO YOU!

Many of you have noticed and read the rash of popular medical articles that have been appearing in current women's magazines. According to some of our husbands there is a wealth of misinformation in these articles half-truths wild claims and historical inaccuracies. In order to increase circulation and appeal to the lay reader, these pseudo-scientific medical writers must necessarily dramatize their subject and appeal to the sensational and the gullible. Considerable mischief is created and much time spent in explaining the half-truths and misconceptions gleaned from these popularized articles. Most doctors have had the experience of having a patient bring in a clipping or an excerpt from one of these articles and demand that this new treatment, or whatever has been advocated, be instituted on him or some member of his family.

Many articles on the welfare side of socialized medicine have been published recently. These have reported the American public to be medical indigents, except for the very wealthy and the very poor. They have presented only the side of the welfare state planners and have, in general, put the medical profession in a bad light.

One of the publications of the American Medical Association, that the Woman's Auxiliary is very much interested in, is *"Today's Health,"* successor to *"Hygeia."* This magazine has articles of general interest about maintaining health, various diseases, child care, surgical operations, etc., that are written or are edited by doctors of medicine. They are factually correct, unglamorized and present information in an interesting manner that doctors would like to have their patients obtain. In addition, many articles stating the profession's side of socialized medicine and giving the lie to the false claims of the social planners appear regularly.

It is in the interest of the medical profession to have this type of publication circulated among their patients as widely as possible. It is the Auxiliary's desire to bring this about and indeed is, and has been, one of our projects for many years. Considerable energy is expended in selling subscriptions to *"Today's Health"* with the principle idea of helping our doctors in mind. However, the County Society Auxiliaries compete for a cash prize in obtaining the most subscriptions.

This year we have adopted a plan giving a subscription to *"Today's Health"* as a Christmas gift and suitable gift cards will be available. When a member of the Auxiliary contacts you for a subscription or renewal for your office waiting room, she is trying to bring about a better understanding through this publication between you and your patients; to present the true picture of the various diseases that all patients are interested in and like to read about and to help the Auxiliary in the subscription competition. It is hoped that all of you doctors will have one or more copies available in your reception room and are taking a personal subscription to peruse in your home to see what good this magazine can do for your patients. Christmas gift subscriptions are an easy and worthwhile way of remembering your select patients and it is our hope that you will keep us busy writing these orders this Christmastime.

For the benefit of the doctors and doctor's wives in communities where there is no County Society or Auxiliary, a letter or a postal card to me will insure your subscription or gift subscription promptly. The subscription price is nominal being $1.50 for one-year, $2.50 for two-years, and $3.25 for three-years to physicians, dentists and Auxiliary members. The Auxiliary has made many gift subscriptions available to schools and other institutions and plans to continue these donations through the coming year.

Mrs. Paul B. Jarrett, Chairman
Today's Health
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S.1328, SURVEY OF SICKNESS

The American Medical Association opposes S.1328, 82nd Congress, a bill to provide for a survey of sickness in the United States, on the basis that several similar studies are now proceeding under the auspices of responsible groups. The Commission on Chronic Illness was established in the spring of 1949 for the purpose of studying the entire subject of chronic diseases, including a comprehensive survey of the extent of such diseases and the programs, federal, state and local, being conducted to meet their needs. This study is now in the process of being extended for a period of three to five years and is being supported financially by a large number of voluntary health organizations

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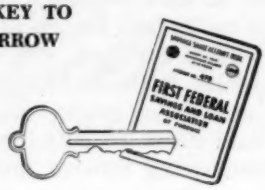

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and by the Public Health Service of the Federal Security Agency.

The Brookings Institution is also in the process of making a study of the health resources of the United States and its report should be ready for publication soon. There is little doubt that most of the information that would be developed through the operation of S.1328 has already been gathered by the Brookings Institute for its study.

A new commission for the study of hospital financing has been established this year, with financial support from several philanthropic foundations, which will conduct a three year survey in this important field. Included in its study will be the problem of chronic illness with special reference to the cost of hospitalization.

The American Medical Association does not presume to question the right of the Congress of the United States to make a study of any problem in order to provide information, on the basis of which suitable legislation can be drafted. It objects to this survey however since it is apparent that the problem is being carefully studied by several reliable commissions or agencies which will be happy to make their findings available to the members of the Congress. This new proposed survey would overlap existing studies and constitute an additional federal expense that is not now necessary.

BOOK REVIEWS

"Spatial Vector E.ectrocardiography, Clinical Electrocardiographic Interpretation." By Robert P. Grant, M.D., Nat onal Heart Institute, Bethesda, Md.; and E. Harvey Estes, Jr., M.D., U. S. Naval Hospital, Bethesda, Md. 41 Figures; 149 pages; June 1, 1951. $4.50. The Blakiston Company, Philadelphia ,5 New York 22, Toronto 2.

The problem of reading and interpreting electrocardiographs is simplified for practitioners and students in this text by the use of vector methods. It is written in simple and non-technical terms for daily use by those who have had no special training in physics or mathematics.

It contains only those theoretical aspects absolutely indispensable for a clear understanding of the clinical application of ECG.

The use of vector methods gives simple, accurate and objective interpretations of normalities and abnormalities. When combined with the "pattern" and empirical methods, it makes the interpretation objective rather than intuitive.

The material included covers the ventricular ECG– a discussion of the QRS and T abnormalities.

CONTENTS

Preface.

Part I, The Spatial Vector Method of Interpretation. The Vectors of the Heart; The Limb Leads as Vector Measurements; The Precordial Leads as Vector Measurements; The Method of Calculating the Spatial Vectors from Conventional Leads.

Part II, The Clinical Application of the Spatial Vector Method–The Characteristics of the Spatial Vectors in the Normal Subject; The Abnormal ECG; Abnormalities of the QRS Vectors; Abnormalities of the T Vector; The Vectors in Myocardial Infarction; The Ventricular Gradient; Broader Implications of the Spatial Vector Method. Bibliography. Index.

"Practical Clinical Psychiatry"–7th Edition. By Edward A. Streckler, Litt.D., L.L.D., M.D., Professor of Psychiatry, School of Medicine, University of Pennsylvania; Franklin G. Ebaugh, M.D., Professor of Psychiatry, University of Colorado, School of Medicine and Director, Colorado Psychopathic Hospital; and Jack R. Ewalt, M.D., Professor of Neuro-Psychiatry and Administrator of Hospitals, University of Texas Medical Branch, Galveston. Section on "Psychopathologic Problems of Childhood" by Leo Kanner, M.D., Associate Professor of Psychiatry, Johns Hopkins University School of Medicine. 35 Figures; 14 Tables; 506 Pages; June 13, 1951. $7.00. The Blakiston Company, Philadelphia 5, New York 22, Toronto 2.

This seventh edition of a standard text for psychiatrists has been brought completely up-to-date with modern psychiatric teaching and thought.

Written by recognized leaders in the field, it is also designed for medical students and general practitioners who, because they treat the vast majority of psychiatric patients, need to keep abreast of modern developments.

The Armed Forces Classification of Mental Disorders as well as the American Psychiatric Association Classification of Mental Disorders is included. There is a new section on Support Therapy which outlines effective methods of treating patients requiring treatment less extensive than orthodox analytic procedures.

New case histories are included throughout to illustrate the basic principles.

CONTENTS

Preface to Seventh Edition; Personality Development and Function; Methods of Psychiatric Examination; The Organic Reaction Type; Toxic Psychosis; The Affective Reaction Types; The Schizophrenic Reaction Types; The Constitutional Psychopathic Inferior; Reactions of Developmental and Constitutional Defects; Paranoid Reaction Types and Paranoia; Traumatic Reactions; Psychoneuroses; Psychosomatic Medicine; "Support" Psychotherapy; Pathologic Drinking; Psychopathologic Problems of Childhood; Index.

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Animal studies have forcefully demonstrated the adverse effect of inadequate protein nutrition on recovery processes.[1] Protein-depleted rats fed an adequate repletion ration manifest a rapid recovery of lost weight, of normal plasma protein and hemoglobin levels, of certain enzyme systems, and of normal capacity to synthesize antibody protein and to resist infection. On the other hand, reduction in the amount of but one essential amino acid in the repletion ration quickly causes loss of appetite, diminished food consumption, and inadequate weight recovery. This quick appearance of overt symptoms due to a shortage of an essential amino acid contrasts sharply with the delayed appearance of symptoms induced by deficient intake of any other essential nutrient.

These manifestations of acute amino acid deficiency noted in the rat can occur as readily in the normal human subject consuming a diet lacking in any one of the eight essential amino acids.[2] Loss of appetite and of body nitrogen accompanied by malaise quickly results. Furthermore, addition of the missing amino acid to the diet quickly restores the appetite, nitrogen equilibrium, and the previous state of health. Apparently, even in normal persons, lack of an amino acid in the diet partially or completely interrupts protein synthesis as well as increases tissue protein catabolism.[1] The conclusion is incontestable, therefore, that adequate protein nutrition is vital for speeding the processes of recovery from massive disease or major surgery.

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1. Cannon, P. R.: Recent Advances in Nutrition with Particular Reference to Protein Metabolism, Lawrence, Kansas, University of Kansas Press, 1950, pp. 56-60.

2. Rose, W. C.: The Nutritive Role of the Amino Acids, The Science of Nutrition, New York, The Nutrition Foundation, 1946.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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